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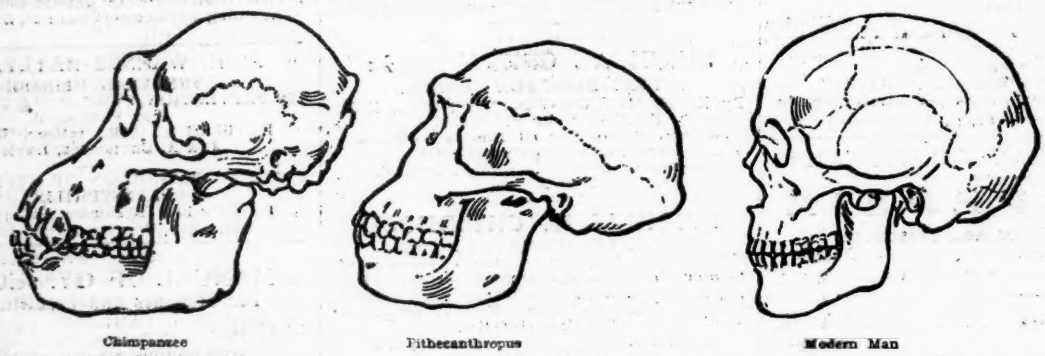

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INDEX TO VOLUME I FOR 1920.

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma, Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria and Sugar; Light, Roentgen, Radium, *X* Rays; Status Lymphaticus and Thymus; Eye, Ophthalmia and Vision; Bicycle and Cycle; Motor and Automobile; Association, Institution, and Society; Paris, France; Berlin, Prussia, Germany; Vienna, Austria, etc. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Correspondence," "Leading Articles," "Reviews," etc. Original Articles are indicated by the letter (O).

A.

ABBOTT, Charles C., "herbal specialist," legal proceedings against, 659
Abdominal cases, three acute: polypus of stomach, large haemorrhage into wall of caecum, large ovarian cyst (J. Lionel Stretton), 80. (O)
Abdominal emergencies (Rutherford Morison), 425. (O)
Abdominal tuberculosis. *See* Tuberculosis
ABERCROMBIE, R. W.: Physiopathic paralysis of the hand and its causation, 764. (O)
Aberdeen, proposed institute of research in animal nutrition at, 438
Abortifacients, sale and advertisement of (leading article), 192—Correspondence on, 242
Abortion, attempted, sudden death at, 624
Abortion, cervical (Gladys J. C. Russell), 363
Abortion, etiological factors in (Daniel Dougal and J. W. Bride), 632. (O)
Abortion, factors in (Drs. Dougal and Bride), 540
Abortionist sentenced (Devi Dayal Sasun), 589, 754
ABT, Isaac A.: *The Baby's Food*, rev., 368
Académie de Médecine, centenary of, 161—Election of members and corresponding members, 589
Academy, Royal, 645

ACADEMY, ROYAL, OF MEDICINE, IN IRELAND:
Section of Medicine.—Exhibition of cases, 736—Dr. Spears: Mixed functional and organic palsy, 736
Section of Obstetrics.—Bethel Solomons: Uterine cancer, 48—Dr. Ashe: Ovarian insufficiency, 48—Sir W. Smyly: Schultz's forceps, 48—Hastings Tweedy: Tubal sterility, 604—Spencer Sheill: Circumcision as an ancient rite and as a surgical procedure, 768
Section of Surgery.—Cases and specimens, 519—A. E. Boyd: Oil ether colonic anaesthesia, 768—Sir W. I. de C. Wheeler: Arthroplasty of the knee-joint, 768—Seton Pringle: Early symptoms of cancer of colon, 768

Acari from lungs of *Macacus rhesus* (F. Martin Duncan), 276
Accidents, rare, presumed due to negligence, 554
ACHARD: Lethargic encephalitis, 193, 241
Achilleion palace at Corfu now known as the Tribondeau hospital, 458
Acidosis in certain nervous disorders (B. H. Shaw), 695. (O)
Acne vulgaris, *x*-ray treatment of (H. C. Semon), 700. (O)
Acoustic tumour. *See* Tumour
Acta Societatis Medicorum Fennicae Duodecim, 312
Actinomycosis, simple method of cultivating the micro organism of, 435
ADAMI, J. G.: The diphtheroid group, 14—Elected honorary Fellow of Christ's College, Cambridge, 785
ADAMS, John: Ante-natal and post-natal syphilis, 603
ADAMSON, James, obituary notice of, 313
ADDISON, Right Hon. Christopher: Appreciation of Sir Robert Morant, 455
Addison and Harley on the colour of a cat, 72
Adenoids, nasal drill in treatment of (Gertrude H. Hickling), 147. (O)—Correspondence on, 238, 310, 349, 487
Adenomyoma of recto-vaginal septum (M. H. Phillips), 224
Adjusting the matter, 278
Adrenalin mydriasis (Loewi's) as a sign of pancreatic insufficiency (W. L. Cockcroft), 669. (O)
Advertisements for medical officers. *See* Medical
Advertising's artful aid, 558
Aeroplane in medical investigation, 230—Aërial expedition to make journey from Cairo to the Cape, 230. *See also* Mitchell, Chalmers
Aesculapian Club, Toronto, election of officers, 725
AFFLECK, Sir James O.: Appreciation of Sir Thomas Fraser, 101
Afghanistan dispatch, 422
Africa, East, Indian medical practitioners in (parliamentary question), 482, 650
Africa, sleeping sickness in (Captain Basil Spence), 205
Africa, West, the white man in, 411
"After-care," 650. *See also* Sanatorium treatment
Air Ministry: *The Medical Examination of Civilian Pilots, Navigators, and Engineers*, 608
Air raid claims (parliamentary question), 808
Air-way infections (T. H. C. Benians), 668. (O)—Correspondence on, 812
AITKEN, Captain C. J. H.: Night blindness in scurvy, 526
ALBERT-WEIL, E.: *Éléments de Radiologie*, rev., 770
ALCOCK, A.: *Entomology for Medical Officers*, rev., 707
Alcohol, supply of to doctors in America, 623
Alcohol as a therapeutic agent (Dr. Dale), 294—Discussion, 295
Alcohol for power and traction purposes: Investigation officer appointed, 112
Alcoholism, acute, in man, toxicological investigation of, 411
ALDERSON, Reginald: Severe angio-neurotic oedema, 828
Alien enemy practitioners (New South Wales), 233
Alimentary canal, needle in (Heywood Smith), 81—(W. M. Feldman), 206—Pin in (H. B. Pope), 242—(A. B. Roberts), 424
ALLBUTT, Sir Clifford: Appreciation of Sir William Osler, 64—Appreciation of Charles Louis Taylor, 101—Medical literature for Vienna, 484—Elected an honorary member of the Association of American Physicians, 779—Presentation portrait of, 876—Writes a preface to *Industrial Colonies and Village Settlements for Consumptives*, 885
Alopecia, 138, 173
ALSTROM, Hedda: Mechano-therapy, 366
AMBARD, L.: *Physiologie normale et pathologique des reins*, rev., 606
Ambassadors to the United States, medical, 410
Ambulance Service, the Home, 716
Ambulances, 1st and 2nd South Midland Field, dinner, 687
Ambulances for civil work in the United Kingdom, 434—Correspondence on, 784
Amenorrhoea, pregnancy during, 278
America. *See* United States
American Frohse life-size anatomical charts, 16
Amibiasine for dysentery, 190
Amicis prize, 691
Ammonia coefficient, high (Lady Barrett), 603
AMOSS: Portal for acute poliomyelitis, 343
Anaesthesia, colonic ether (A. E. Boyd), 768
Anaesthesia in epileptics, 526, 558, 624
Anaesthesia in throat operations (Felix Rood), 295
Anaesthesia for thyroid operations (Mrs. Dickinson Berry), 635
Anaesthetics, administration of (parliamentary question), 583
Anaesthetics, discussion at Sheffield Medico-Chirurgical Society, 539
Analgesia, visceral, in tabes, 480
Anaphylaxis, severe recovery, 72
Anatomy inspector for Scotland, appointment of, 617
Anatomy, review of books on, 367
ANDERSON, Daniel E.: *Epidemics of Mauritius*, rev., 298—Letter on, 383
ANDERSON, Ford: Rupture of uterus, 829
ANDERSON, Dr. Garrett: Surgery at the Endell Street Hospital, 605
ANDERSON, Kenneth: Acute oedema of lungs, 571
ANDERSON, R.: Small-pox in Scotland, 785
ANDREWS, Captain H. J., obituary notice of, 137
Angio-neurotic oedema. *See* Oedema
Ankle amputation, artificial appliance for, 590
Ankle, fracture dislocations of, 62
Ankylosis of mandible and its operative treatment (Gilbert Chubb), 256. (O)
ANSON, G. E.: Haematoporphyrinuria, 634
Ante-natal respiratory movements, 877
Anthrax infection by brushes, 25, 53, 276
Anthrax Prevention Act, 276
Antianaphylaxis in treatment of chronic disorders (leading article), 839
Antimony intravenously in filariasis (Lieut.-Col. Sir Leonard Rogers), 596. (O)
Antipyretic drugs and cold water, 206
Antiscorbutic lemon juice tablets, 624
Antispiritualistic vaccine, 726
Antistreptococcic serum in puerperal fever (O. Hilton), 185
Antistreptococcic serum in quinsy (Noel C. Forsyth), 361. (O)
Antityphoid inoculation (parliamentary question), 482
Antivermin paste, 472
Anzacs, prophylaxis and venereal disease amongst, 202. *See also* Venereal
Aortic endocarditis and aortitis, association of (J. E. MacIlwaine), 428. (O)—Correspondence on, 586, 656, 688, 754
Apoplexy, utero-placental. *See* Haemorrhage, accidental
Apothecaries' Society of London: Pass lists, 204, 690, 814—Awards Gillson scholarship, 277
Apothecary poet's house (Keats), 526
Apparatus for man without arms, 20
Appendicectomy by a new route (R. H. Anglin Whitelocke) 211, 223. (O)—(H. Stewart Brander), 293—Correspondence on, 416
Appendicitis without protective stiffening of the abdominal wall (John D. Malcolm), 432. (O)
Appendicular concretions (S. G. Shattock), 635
Appendix dyspepsia. *See* Dyspepsia
Appendix, intussusception of (Archibald Young), 365
ARAUJO, Heraclides Cesar de Souza: *A Prophylaxia Rural no Estado do Parana*, rev., 738
ARKWRIGHT, Dr.: Rickettsia bodies in trench fever and typhus, 709—Bacterial variation, 709
ARMAND-DELILLE, P. (and Ph. WAPIER): *L'Ecole de Plein air et L'Ecole au Soleil*, rev., 154
Armless man, apparatus for, 20
ARMSTRONG, Henry Edward, Honorary Fellowship of Society of Medical Officers of Health conferred upon, 305
ARMSTRONG, Richard R.: Cervical caries simulating cerebellar tumour, 499. (O)
ARMSTRONG-JONES, Sir Robert: Forgetting, psychological repression, 98, 236

ARMY, BRITISH, MEDICAL SERVICE OF:
Appointments to new territorial army, 489
Army Medical Service in the war (leading article), 840
Army pay of civilian medical practitioners, 172
Auxiliary R.A.M.C. funds, 35
Commissions R.A.M.C., 724
Estimates, 269
Memorial to officers and men of the R.A.M.C. who fell in the war, 307, 385
Military medical services in 1919, 134
Nurses, 269
Officers' gratuity, 855
Parliamentary questions, 269, 345, 449, 720, 879
R.A.M.C.: As a career, 29—Memorial to officers and men who fell in the war, 307, 385—War Office memorandum on strength and arrangements for the future, 312—Special Reserve, 489—R.A.M.C. pay in India, 525—R.A.M.C. officers detailed for foreign service, 720—R.A.M.C. commissions, War Office announcement, 724—R.A.M.C. officers' gratuity, 855
Services of (dinner), 807, 831, 840—Leading article on, 840
Special Reserve R.A.M.C., 489, 590, 624
T.F. and S.R. *See* Territorial army
Territorial army, 192, 307, 350, 383, 417, 489, 590, 624, 879—Appointments to the new Territorial army, 489—Conditions of service, 879
Territorial general hospital staffs, 238
Territorial and Special Reserve officers, R.A.M.C., in Mesopotamia, 345
War memorial, 307, 385

Army Council instruction, army fees for civilian doctors, 814
Army fees for civilian doctors, 814
Army, French, medical school of, 55

Army, Indian, medical service of: Temporary commissions, 35, 93, 96, 168, 200, 382, 417—Is it worth while? 307—R.A.M.C., pay in, 525—Correspondence on, 554—Pensions for widows, children, and dependants of deceased officers (parliamentary question), 650—Assistance for invalided officers (parliamentary question), 650—Cost of increases of pay (parliamentary question), 751—Revised rates of pension, 813—Annual dinner, 814—Recruiting for, 849
Army masseuses. *See* Masseuses
Army Medical Department, services of, 807, 831
Army mental hospitals. *See* Hospitals
Army nurses (parliamentary question), 269
Army officers in India. *See* India
Army, United States, medical museum of, 163
ARNOLD, F. S.: Erysipelas, 277, 316—A correction, 316
Arsenic in lethargic encephalitis, 655
Arsenic, permeability of the meninges to, 785
Arseniuretted hydrogen gas, poisoning by (Thomas H. Wignall), 826 (O)
Arseno-benzol compounds in syphilis comparison of two methods of administering (H. E. Gibson), 114. (O)
Arseno-benzol compounds used in treatment of syphilis poisoning by (Alexander G. R. Foulerton), 864. (O)
Arseno-benzol preparations, toxic effects of (leading article), 51
Arterial embolism, operation for, 8 5
Artery, subclavian, subcutaneous rupture of (Cecil Rowntree), 326
Arthritis, suppurative, and peritonitis after acute bronchopneumonia (A. Lloyd Davies), 501
Arthroplasty of knee-joint (Sir W. I. de C. Wheeler), 768
ARTHUS, Maurice: *La Physiologie*, rev., 540
Articular cartilage, nutrition of (T. S. P. Strangeways), 661. (O)
Artificial appliance for amputation below ankle, 590
Artificial limbs, provision of (parliamentary question), 583
Artificial limbs, provisional, 423
Artificial pneumothorax, note on, with description of a new needle (Frederic C. Coley), 432 (O)—Correspondence on 522
ASHE, Dr.: Ovarian insufficiency, 48
ASKEY, S. G.: Mode of quinine administration, 61
Asphyxia neonatorum, cardiac massage in (E. Ward), 257
Asphyxia from inhalation of tobacco smoke, 692
Association, British, Cardiff meeting, 880
Association, British Dental, new head quarters opened, 173
Association, British Medical: Annual Meeting at Cambridge, 1920, 17, 125, 369, 410, 505, 511, 551, 579, 612, 645 651, 681, 714, 772, 840, 843, 845—Evolution of the Cambridge medical school, 369, 505, 651—Note on, 511—Pathological museum, 579—Sections, 645, 681, 714—Annual dinner, 645—Present Cambridge medical school, 772—Honorary degrees at, 840—Picturesque Cambridge, 845

ASSOCIATION, BRITISH MEDICAL:
Bromley Division.—Golf tournament, 785
East Riding Division.—E. Harrison: Early diagnosis of syphilis, 364
Edinburgh Branch.—Clinical meeting, 234, 348
Hampstead Division.—Meeting and exhibition of cases, 438
New South Wales Branch.—Resolution *re* alien enemy practitioners, 233
Portsmouth Division.—Clinical demonstration, 14

Association, British Medical, proposed new Branch in China, 619
Association, British Medical, machinery of, 63
Association, British Medical, President-elect, 551
Association, British Medical, South African Congress of 514
Association, British Medical, Stewart Prize, 748
Association, British Orthopaedic, 687
Association of Certifying Factory Surgeons, report, 335
Association, London, of the Medical Women's Federation: Discussion on infant welfare centres, 153—Hedda Alstrom: Mechanotherapy, 366—Helen Boyle: Early nervous and borderland cases. 438—Dr. Garrett Anderson: Surgery at the Endell Street Hospital, 605—Sibyl I. Welsh: The nervous system and the endocrine glands, 769
Association, Medical Museums. *See* Medical
Association, Medico-Psychological:—S. Hunter Steen: Chronic hallucinatory psychosis, 363—Report on treatment of incipient mental disease, 515
Association, Mental After-Care, annual meeting, 423
Association, National, for Prevention of Tuberculosis, appeal, 423
Association of Public Vaccinators, annual meeting, 368
Association, Scottish Poor Law Medical Officers', annual report, 166
Association of Surgeons of Great Britain and Ireland: Leading article on, 90—Formal constitution of, 90—First annual meeting, 445—First meeting in London, 714
Association, Women's Medical, of New York City: Mary Putnam Jacobi fellowship, 173, 205
Association, Women Sanitary Inspectors and Health Visitors', advocate equal pay for both sexes, 815
Asthma, results of peptone treatment of (A. G. Auld), 567. (O)
Asylum Medical Service, improvements in, 550, 686
Asylums as military hospitals (parliamentary question), 551
Atropine in acute suffocative catarrh (Wm. Verner Furlong), 219
Atropine in pylorospasm and pyloric hypertrophy, 551
Atropine in sea-sickness, 23
AULD, A. G.: Mitral stenosis in soldiers, 13—"Intravenous protein therapy," 380—Results of peptone treatment of asthma, 567. (O)
AUSTEN, Major E. E.: *The House-fly, its Life-history and Practical Measures for its Suppression*, rev., 607
Australasian Medical Congress, 206
Australia: Deaths from diphtheria in, 632—Friendly societies and nursing benefits, 881—Federal control of the public health, 881
Australia, South: Medico-political, 27—University and medical school, 27—Verco, Sir Joseph, 27
Australia, West: Number of cases of gonorrhoea and syphilis notified, 724
Austrian destitute orphans, hospitality for (parliamentary question), 346
Aviators, civilian, medical examination of, 608
Aviators, experienced, labyrinthine reactions of (David Ranken), 860. (O)

B.

Babies, review of books on, 368
Baby week, 849
BACOT, Mr.: Rickettsia bodies in trench fever and typhus, 709
B. influenzae. *See* Influenza bacillus
Bacteria, review of books on, 297
Baden and Prussia decide to create a doctorate in dentistry, 589
Bahr. *See* Manson-Bahr
BAILLIÈRE, Emile J. B., death of, 557
BAIRD, Captain H. C: *Service Handbook*, 385
BALFOUR, Andrew: Ticks and relapsing fever, 97, 235
BALFOUR, Major Thomas Henry, obituary notice of, 556
BALL, E. J.: Our opportunity, 520
BALL, Captain Robert Gordon, obituary notice of, 690
BALLANCE, Sir Charles A. (and Charles David GREEN): *Essays in the Surgery of the Temporal Bone*, rev., 798
BALLANTYNE, J. W.: Colour in pregnancy, 438
BALMAIN, Captain Augustus R.: Treatment of malaria, 381
BANA, F.: Acute attack of asthmatic dyspnoea caused by filarial embryos, 796
BANKS, George, diamond jubilee of, 127
BANNING, Robert J., obituary notice of, 351
BARBER, Hugh: Case of tuberculous meningitis with complete recovery, 601. (O)
BARBER, Margaret H.: *British Nurse in Bolshevik Russia*, rev., 799
BARBER, Maurice C.: Case of encephalitis lethargica, 500
BARCROFT, J.: Oxygen therapy, 150
BARDSWELL, Noel Dean: *Advice to Consumptives, Home Treatment, After-care, and Prevention*, rev., 708
BARENDT, Frank H.: Remarks on sclerodermia, 44. (O)
BARFORD, A. M.: Anaesthesia in epileptics, 558
BARKER, Arthur, the drugless healer, sentence on, 314
BARKER, J. C.: Treatment of septic peritonitis, 656
BARLING, Colonel Seymour (and Major J. T. MORRISON): *Manual of War Surgery*, rev., 469
BARNES, John A.: New lamps for old in obstetrics, 59
BARR, Sir James: Measurement of emotion, 381
BARRETT, Lady: High ammonia coefficient, 603
BARTER, Brigade Surgeon Joseph Francis, obituary notice of, 855
BARTON, H. T.: A record tramp, 726
BARWISE, Sidney: Public health versus the State, 96
BASKETT, Bertram G. M.: Public health versus the State, 40. (O)—Letters on, 167, 308, 417, 520, 656
Batavia, third centenary of the foundation of, 315
Baths of old London, 807
BAYLISS, W. M.: Is haemolyzed blood toxic? 351
BAYLY, H. Wansey: Prevention of venereal disease, 61—Prophylaxis and venereal disease amongst the Anzacs, 202—Prevention of venereal disease, 623—*Venereal Disease: its Prevention, Symptoms, and Treatment*, rev., 639—Early diagnosis of syphilis, 753
BAZELY, Minnie W.: Incision in Caesarean section, 602
BEADNELL, Surgeon Captain C. Marsh: *The Reality or Unreality of Spiritualistic Phenomena*, 77
Beard case, House of Lords judgement in, 383
BEATTIE, J. Martin (and F. C. LEWIS): Sterilization of milk by electricity, 682, 722
BEATTIE, Thomas: Early diagnosis of pulmonary tuberculosis, 111. (O)
Belfast: Tuberculosis sanatorium, objections to proposed site for, 617, 783—Graymount hospital, Sir H. Gauvain's report, 655, 688
BELL, W. Blair: Diverticulum of bladder, 224—Transfusion of blood in eclampsia, 625. (O)—Correlation of function, 787. (O)—Treatment of cancer of cervix uteri, 850
BELLHOUSE, Gerald: "Safety first," 848
BENIANS, T. H. C.: Air-way infections, 668. (O)
Bequests to hospitals and medical charities, 46, 71, 81, 149, 165, 173, 226, 277, 315, 525, 815
BERGEL: Biology of the lymphocyte, 123
Bergonié chair, description of, 365
Beri-beri and carbohydrate excess (K. Simpson), 735
Beri-beri, early manifestations of (H. H. Hepburn), 466. (O)
Beri-beri, prevention of, 72
Beri-beri, treatment of (W. H. Willcox), 73. (O)
Beri-beri, value of legumes in, 816
BERKELEY, Comyns (and Victor BONNEY): *Textbook of Gynaecological Surgery*, rev., 708—(and Victor BONNEY) *Guide to Gynaecology in General Practice*, rev., 770—*Gynaecology for Nurses and Gynaecological Nursing*, rev., 870
BERNARD, Léon, elected a member of the Académie de Médecine, 221
BERNHARD-SMITH, A.: Thyroid administration in hibernating dormice, 424
Berraute Prize awarded, 457
BERRY, Mrs. Dickinson: Anaesthesia for thyroid operations. 635
BERRY, Richard J. A.: A plea for the tonsils, 199
BIER, August, and abolition of compulsory military service, 289
BILLINGTON, William: St. Chad's Hospital, Birmingham, 263—Future provision of medical services: provision of private wards in health centres, 783
Biochemistry at the universities, 841
BIRK, Walter: *Säuglingskrankheiten*, rev., 771
Birmingham: Difficulty in dealing with orthopaedic cases (parliamentary question), 650—1st and 2nd South Midland Field Ambulances, dinner, 687
Birmingham scheme for the mentally defective (W. A. Potts), 472. *See also* Mentally defective
Birthday honours, 805
Birth rate, the declining (leading article), 611
Births in England and Wales, Registrar-General's quarterly return, 457, 752, 775, 802, 836, 874. *See also* Vital statistics
Births, illegitimate, and ophthalmia neonatorum (Grace H. Giffen Dundas), 436
BISHOP, Ernest S.: *Narcotic Drug Problem*, rev., 573
Biting insects and children (Sir A. Shipley), 659
BLACKER, G.: Rockefeller Foundation gifts, 883
BLACKHALL-MORISON, Alexander: Future provision of medical services, 812—The passive mechanical factor in heart disease, 817. (O)
Bladder, diverticulum of (W. Blair Bell), 224
Bladder, rifle bullet in (Major F. R. Brown), 220
BLAIR, Alexander: New lamps for old in obstetrics, 60
BLAKE: Experimental production of influenza, 267—Experimental pneumonia, 875
BLAKER, Nathaniel Paine: *Sussex in Bygone Days*, rev., 226
BLAKER, Thos. Fredk. I.: Coelum non animum, 278
BLAND-SUTTON, Sir John: Diverticulitis, 84—Retirement of, 780
BLAXLAND, A. J.: Carcinoma of thyroid, 454
Blind Committees, local Advisory (parliamentary question), 650
Blind, deaf, and crippled students, training of, Board of Education draft statutory rules, 584
Blind Persons Bill, 751
Blind, training of (parliamentary question) 345, 413
Blind masseurs, 232, 624
Blind, pensions for (parliamentary question), 615
Blind soldiers, numbers of (parliamentary question), 615
Blind, welfare of, Joint Committee appointed by Ministry of Health, 276—Parliamentary question, 879
Blindness, night. *See* Hemeralopia
BLOMFIELD, James E.: Nephritis, abdominal haemorrhage, death, 400

Blood-cell suspension in complement fixation tests (F. C. Lewis), 637
Blood, haemolyzed, is it toxic? (W. M. Bayliss), 351
Blood, parental, in haemorrhage of the newborn (Montague Dixon), 539
Blood, pericranial effusion of, 206
Blood pressure, review of books on, 503
Blood serum of the patient injected in meningitis (Rupert Waterhouse), 45. (O)
Blood transfusion in eclampsia (W. Blair Bell), 625. (O)
Blood transfusion in nephritis (Jeffrey Ramsay), 766 (O)
Blood transfusion before operation (Herbert Williamson), 603
Blood transfusion, use of immunized blood donors in (Captain H. J. B. Fry), 290 (O)
Board, Central Midwives, 58, 315, 483, 616, 752
Board, Central Midwives (Scotland), 379
Board of Education: Issues a new edition of the *Syllabus of Physical Training*, 77—Makes it compulsory that local authorities should provide for medical inspection of all their schools, 241—Draft regulations *re* medical inspection and treatment of school children, 481 — Draft statutory rules *re* training of blind, deaf, and crippled students, 584—Issues list of schools and institutions for physically and mentally defective, 809 — Draft statutory regulations *re* medical inspection of secondary schools, 241, 581, 855
Board, Local Government, forty-eighth and last annual report of, 56, 164, 622—Note on, 52—Public health in 1918-19, 164 — Section dealing with the work of inspectors of food (A. W. J. Macfadden) now published separately, 622
Board, Local Government (Ireland), influenza vaccine, 271
Board of Trade: Sale, prices, and supply of quinine, 124, 173—Report on price of petrol, 352—Issues licence to Scottish Shale Oil Scientific and Industrial Research Association for industrial research, 557
Boarding out of children. *See* Children
Bohemia, small-pox in, 725
Bolton, small-pox at (parliamentary question), 650
BOLTON, Alethia J.: Dried eggs, 856
BOLTON, Charles (and Wilfred TROTTER): Jejuno-colic fistula following gastro-jejunostomy, 757. (O)
BONNEY, Victor: "New lamps for old" in obstetrics, 97—(and Comyns BERKELEY): *Textbook of Gynaecological Surgery*, rev., 708—(and Comyns BERKELEY): *Guide to Gynaecology in General Practice*, rev., 770
BONNEY, William Augustus, obituary notice of, 421
Boots, Messrs., copper alanine in inoperable cancer, 174
Borderland cases (Helen Boyle), 438
BORRADAILE, L. A. (and J. Stanley GARDINER): *The Cambridge Note Book for Practical Biology (Zoology)*, rev., 154
BOSE, Sir Jagadis: Plant response, 412
BOSE, Major Satis, obituary notice of, 690
BOSSAN: Experimental production of pulmonary tuberculosis, 162
Boston, deaths from tuberculosis in 1919, 213
BOUCHÉ, G.: Two typical cases of lethargic encephalitis, 601
BOURNE, Aleck W.: Toxaemias of pregnancy, 727. (O)
BOURNE, A. W.: Spontaneous rupture of uterus following pituitrin, 829
BOUSFIELD, Paul: Forgetting, psychological repression, 237
BOVERI, Piero: Myoclonic form of epidemic encephalitis, 570. (O)
BOWLBY, Sir Anthony: Gunshot fracture of the femur, 1. (O)—War methods in civil practice, 86
BOX, Charles R.: Some points in connexion with renal disease, 356. (O)—*Post-mortem Manual*, rev., 470
BOYD, A. E.: Colonic ether anaesthesia, 768
BOYD, John Alexander, obituary notice of, 314
BOYLE, Helen: Nervous and borderland cases, 438
BRACKENBURY, H. B.: Appreciation of Sir Robert Morant, 421—Presentation to, 847
BRADLEY, Major Richard James, obituary notice of, 70
Brain workers, federations of, 229
BRANDER, H. Stewart: Appendicectomy, 293
Bread (parliamentary question), 615
BREND, W. A., presentation to, 379
BRERETON, Lieut.-Col. F. S.: *The Great War and the R.A.M.C.*, rev., 48
BREWERTON, E. (and Harold B. GRIMSDALE): *Textbook of Ophthalmic Operations*, rev., 606
BRIDE, Dr.: Factors in abortion, 540
BRIDE, J. W.: Results of hysterectomy for fibroids, 14—(and Daniel DOUGAL): Etiological factors in abortion, 632. (O)
BRISCOE, J. F.: Forgetting, psychological repression, 274
BRISTOWE, Hubert C.: Pneumonic haemorrhagic effusion into pleura, 500
British Dental Association. *See* Association
British Federation of Medical and Allied Societies: Tuberculosis Society decides not to affiliate with, 241
British Journal of Experimental Pathology, first number, 351
British Journal Photographic Almanac, rev., 331
British Medical Association. *See* Association
British Science Guild, 195
British soldiers in France and Germany (parliamentary question), 720
Bronchiectasis (A. J. Jex-Blake), 591. (O)—(Ivor J. Davies), 767
Bronchiectasis, spirochaetes in (E. E. Glynn), 14
Bronchopneumonia, acute, followed by suppurative arthritis and peritonitis (A. Lloyd Davies), 501
Bronchus, left, foreign body in (W. R. Cammock), 602—(Thomas Guthrie), 735
BROWDY, M. W.: Prevention of venereal disease, 274
Brown Brothers, motor accessories, 526
BROWN, F. Leonard: Prevention of venereal disease, 99
BROWN, Major F. R.: Rifle bullet in bladder, 220
BROWN, Herbert H.: Acute oedema of lungs, 435
BROWN, John: Acute pulmonary oedema, 726
BROWN, Orville H.: *Asthma*, rev., 869
BROWN, William: Psychopathology and dissociation, 139. (O)
BROWN, W. H.: Plea for the early recognition of syphilis, 501
BROWN, W. Herbert (and Charles F. WHITE): *Atlas of the Primary and Cutaneous Lesions of Acquired Syphilis in the Male*, rev., 541
BROWN, W. Langdon: *Physiological Principles in Treatment*, rev., 188
BROWNE, F. J.: Hydatidiform mole, 152
BROWNLEE, John: Epidemiology of phthisis, 444 478—Public health administration in epidemics of measles, 534. (O)
BRUGSCH, Th.: *Ergebnisse der gesamten Medizin*, rev., 639
BRYAN, Frank: Commissions, I.M.S., 200
BRYANS, A.: Early diagnosis of syphilis, 416, 620
Budget (leading article), 577, 610—Parliamentary questions, 582, 686—The new taxes, 609, 677, 686
BUIST, H. Massac: Motor notes for medical men, 517, 543—Taxation of motor cars, 574
Bullet in bladder (Major F. R. Brown), 220
BURDETT, Sir Henry Charles: *Burdett's Hospitals and Charities, 1919: being the Year Book of Philanthropy and the Hospital Annual*, rev., 49—Obituary notice of, 657
BURKE, E. T.: *The Venereal Problem*, rev., 190
BURNETT, Sir E. Napier: Report of hospital survey, 684, 710
BURNHAM, Colonel Fred. E.: A record tramp? 692
Burns, paraffin wax for first-aid treatment in (J. R. Garrood), 539
BURROWS, Arthur: Radium therapy in advanced cancer of cervix, 806, 829
BUSHE, Surgeon Commander C. K.: Naval Medical Memorial Fund, 457
BUTCHER, W. Herbert: Prevention of venereal disease, 28
BUTTAR, Charles: The Territorial Force, 350—Public health versus the State, 382
BUTTER, John Kerr, obituary notice of, 690
Butter, cocoa, 446
BUTTERS, Geo.: "Acute suffocative catarrh," 150
BUXTON, P. A.: House-fly as a carrier of *E. histolytica*, 142. (O)
BYERS, Sir John, dinner to, 167

C.

CABOT, Hugh (editor), *Modern Urology*, rev., 470
Caecum, large haemorrhage into wall of (J. Lionel Stretton), 80. (O)
Caecum, volvulus of, double obstruction (R. Eccles Smith), 289. (O)
Caesarean section for dystocia (D. Dougal), 224
Caesarean section, the incision in (Minnie W. Bazely), 602
Caesarean section for placenta praevia with concealed haemorrhage (R. Douglas Laurie), 220
Caesarean section scar (Eardley Holland), 705
Calcium chloride as a haemostatic (W. R. Grove), 47
Calcium lactate, value of, 726
Calcutta: School of Tropical Medicine, 550—Small-pox in, 618
CALEY, Guthrie Neville, obituary notice of, 588
Calf lymph, preparation of (H. S. Fremlin), 368
CALVERT, James: Appreciation of Samuel West, 386
CAMAC, James: Case of encephalitis, lethargy and myoclonus, 704
Cambridge: Annual meeting of the Association at, 17, 125, 369, 505, 772. 843, 845 (*see also* Association, annual meeting)—Evolution of the medical school at, 369, 505, 772
Cambridge Natural Science Club, 163
CAMMOCK, W. R.: Foreign body in left bronchus, 602
Camphor oil, subcutaneous injections of, 388, 424, 828—(Captain A. D. GORMAN), 828
CAMPBELL, Thomas: Mode of infection in pulmonary infection, 185
CAMPBELL, W.: Diagnosis of syphilis, 469
Canada: Aesculapian Club, Toronto, 725—Prescriptions for liquor in Ontario, 725
Cancer of cervix, advanced, rendered operable by radium therapy, 806, 829, 850
Cancer of colon, early symptoms of (Seton Pringle), 768
Cancer, experimental induction of (leading article), 680 - Correspondence on, 722, 850
Cancer, helminths in (leading article), 777
Cancer, inoperable, copper alanin in, 104, 174
Cancer operations, use of *x* rays as immunity-raising agents before and after (Francis Hernaman-Johnson), 793. (O)
Cancer, radium in, 483, 745
Cancer, tar, and chronic ulceration, Home Office Order, 122
Cancer of thyroid gland, papilliferous (Basil Hughes), 362. (O)—Correspondence on, 454, 586
Cancer of uterus (Bethel Solomons), 48
Cancer of uterus, radiotherapy in, 480
Cancer of uterus, treatment of, 416, 452, 521, 554, 585. *See also* Tumours
CANNON, Walter B.: *Bodily Changes in Pain, Hunger, Fear, and Rage*, rev., 440
Capetown, annual report of M.O.H., 241
Carbohydrate excess and beri-beri (K. Simpson), 735
Cardiac disease, analysis of 100 consecutive cases (W. Black Jones), 145. (O)
Cardiac massage in asphyxia neonatorum (E. Ward), 257
Cardiff, hospitals and clinics at, 307—Early care of mental cases in, 348
CARLESS, Albert: *Manual of Surgery* (Rose and Carless), rev., 769
Carlisle experiment in liquor control, annual report, 653
CARMALT-JONES, D. W., appointed to chair of systematic medicine in the University of Otago, 35
Carmarthen, medical dinner at, 166
CARNOT: Retrograde absorption by the kidney, 878
Carolina, South, bill passed requiring all "chiropractors, osteopaths, and other healers" to submit to State medical examination, 623
CARRUTHERS, Major V. T.: Instinct and hysteria, 792. (O)
CARTER, F. Bolton: Gastric ulcer after gastro-jejunostomy, 13
CARTER, Herbert S.: Diet lists of the Presbyterian Hospital, New York City, rev., 16
CARTER, Captain H. S.: Case of dermographism, 149
CARVER, Alfred: Forgetting, psychological repression, 46. (O)—Letter on, 170
CARVER, G. E.: Alopecia, 173
Catarrh, acute suffocative (W. Duncan Lawrie), 115—(Geo. Butters), 150—(Henry Yellowlees), 257—(J. A. Smyth), 670. (O)
Catarrh, acute suffocative, atropine in (Wm. Verner Furlong), 219
CATHCART, E. P., elected Fellow Royal Society, 344
CATTLE, C. H.: Soldier's heart, 188
Cavell monument in London, 148, 413—Unveiling of, 413
CAZAMIAN: Atropine in sea-sickness, 23
CECIL: Experimental production of influenza, 267—Experimental pneumonia, 875
Census bill, 305, 879
Census, the next, 842
Census, physical, of the male population, report on, 331—Leading article, 339
Cerebro-cranial injuries, review of books on, 830
Cerebro-spinal fever. *See* Fever
Cerebro-spinal and other fluids, sedimentary cell for microscopical examination of, 708
Cervical fistula. *See* Fistula
Cervical caries simulating cerebellar tumour (Richard R. Armstrong), 499. (O)
Cervical vagus and sympathetic: a correction, 138
Chadwick prizes, 355
CHALMERS, Albert J., death of, 514—Obituary notice of, 657
CHAMBERLAIN, James Thomas, obituary notice of, 137
CHAMBERS, E. R.: Prolonged retention of a foreign body in the cornea, 363
CHANDLER, Asa C.: *Animal Parasites and Human Disease*, rev., 118
CHAPLIN, Arnold: Appreciation of Sir William Osler, 66
Charaka Club: Proceedings, vol. v., rev., 16
Charing Cross improvements, 104
Chavasse's Advice to a Mother, rev., 368
CHEATLE, G. Lenthal: Herpes zoster and greyness of hair, 219
Cheltenham and district, reunion dinner, 103
Cheshire: County health administration, 58
Chest wound, penetrating: thoracotomy: suture of pericardium (J. B. Haycraft), 184. (O)
Chest wounds, penetrating (leading article), 91
Chest surgery (Sir Charters Symonds), 401
CHEVERS, Martin J.: Cutaneous manifestations in a case of cervical fistula, 424
Chicago: Increase of medical fees in, 725
CHICK, Harriette, awarded Stewart prize, 748
Chicken-pox and shingles (A. Ingram Cooke), 468—Correspondence on, 487

Child labour, restriction of (parliamentary question), 414
Children, boarding out of, Ministry of Health circular on, 782
Children, crippled. *See* Crippled
Children, defective. *See* Defective
China: Proposed new branch of the Association, 619—Joint Conference of English and Chinese doctors, 619—Red Cross Society of, 755
Chinese Medical Missionary Society and National Medical Association, joint conference, 619
Chinese medicine, the founder of, 72
Chiropractors to submit to State medical examination in South Carolina, 623
Chloroform, intratracheal (Clarence Mott), 13
CHRISTIE, Captain J. M. (and Major R. W. SUTHERLAND): Military orthopaedics, 762. (O)
Chrome ulceration, Home Office order, 122
Chrysophanic acid and *x* rays in tinea (C. J. Glasson), 219 (O)
CHUBB, Gilbert: Ankylosis of mandible and its operative treatment, 256. (O)—A head lamp, 472
CHURCH, Archibald (and Frederick PETERSON): *Nervous and Mental Diseases*, rev., 471
Circumcision, a barbarous and unnecessary mutilation (G. S. Thompson), 436—Correspondence on, 620.
Circumcision, for and against (Spencer Sheill), 768
Circumlocution office to-day, 513
Civil motor ambulance *See* Ambulance
Civil practice, war methods in (Sir Anthony Bowlby), 86
Civilian practitioners, army pay of, 172
CLARK, John M., obituary notice of, 524
CLARK, Somerton: Asphyxia from inhalation of tobacco smoke, 692
CLARK, Colonel S. F.: Intramuscular injection of quinine, 99
CLARKE, Astley: University College for Leicester, 715
CLARKE, Lilian: *The Country Cousin at Cambridge*, rev., 869
CLEGHORN, Surgeon-Major-General James, obituary notice of, 884
CLELAND, J. B, appointed to Chair of Pathology at Adelaide University, 526
CLERY, Surgeon-General James Albert, obituary notice of, 314
Clinical centres, 520
Clinical research (Sir James Mackenzie), 105. (O)—Leading article on, 119—Correspondence on, 311
Clinical teaching "elements" at work, 161. *See also* University units
Clinical units in medical schools, 775 *See also* Medical schools
CLIPPINGDALE, S. D.: Wilksiana, 104
CLODD, Edward: Occultism, 771
Clothing for tuberculous patients (parliamentary question), 482
Club: East of Scotland Overseas Medical, 196—North of England Edinburgh University, annual dinner, 584
Club, Royal Naval Medical, dinner, 814
Coal gas for motors, 205
Coal for invalids (parliamentary question), 720
COATES, Stanley B., presentation to, 848
COBB, Geikie, his book *Organs of Internal Secretion* translated into Spanish and Italian, 71
COBB, Lieut.-Col. R.: Rats and plague, 816
COCKCROFT, W. L.: Loewi's adrenalin mydriasis as a sign of pancreatic insufficiency, 669. (O)
Cocoa butter, 446
CODD, John Alfred, obituary notice of, 556
Coelum non animum, 278
COHEN, H. M.: Anaesthesia in epileptics, 526
COHEN, S. Solis: Mode of quinine administration, 756
COHN, I.: *Urologisches praktikum*, rev., 831
COLEY, Frederic C.: Artificial pneumothorax, with description of a new needle, 432. (O)
Colitis, ulcerative, operative treatment of (P. Lockhart-Mummery), 497. (O)
College, Epsom: Change of address of London offices, 71—Fees raised, 623
College, King's, London, Old Students' Association, 315, 557
College, Royal, of Physicians of Edinburgh: Degrees and pass lists, 240—Fellows, 240, 785—Licences, 240—Lister Fellowship, 785—Members, 240—Parkin prize, 785—Quarterly meeting, 240, 785 — Supplementary royal charter, 240—Suspension of member, 240

COLLEGE, ROYAL, OF PHYSICIANS OF LONDON:
Comitia, 203, 488, 658, 724
Council, 204
Degrees, 203
Diploma in ophthalmic medicine and surgery, 659; in psychological medicine, 658; in tropical medicine, 204
Diplomas, 204, 658, 724
Elections, 488
Fellows, 658, 724
Lectures, 204
Licences, 488
Members admitted, 203, 658
Mitchell lecture on tuberculosis, 204
Obituaries, 488
University of London, 658

College, Royal, of Surgeons, of Edinburgh: Degrees and pass lists, 422, 755—Memorial Prizes awarded, 755—Women to be admitted to Fellowship, 351

COLLEGE, ROYAL, OF SURGEONS OF ENGLAND:
Appointment of representatives, 275
Bradshaw Lecturer, 275
Chamberlens and the Midwifery Forceps presented to library in memory of C. Louis Taylor, 346
Council election, 275, 489, 587
Council meeting, 102, 587, 755
Court of examiners, 102 275
Diploma in tropical medicine, 275
Diplomas in psychological medicine and ophthalmic medicine and surgery, 755
Diplomas, 275, 755, 854
Donations, 587
Examination results, 854
Examiners, election of, 854
Historical surgical instrument cases, 54
Honorary Fellows, 275 854
Hunterian Oration, 102
Representation of members, 102
Vote of condolence, 587

College, Royal, of Surgeons, in Ireland: Mary Louisa Prentice Montgomery lectureship in ophthalmology, 241, 588
College, Trinity, Dublin: Degrees and pass lists, 34, 525
College, University, for Leicester, 715
College, University, London: Election of Fellows, 384—Report, 488—Biometric and eugenic laboratories at, 799—Rockefeller Foundation gifts to, 799, 834, 838
College, West London Post-Graduate, 126
Colleges, Royal, of Physicians and Surgeons, Ireland: Pass lists, 423
COLLETT, J. Wallace: Treatment of malaria, 273, 453
Colliery Surgeons' Committee (Scotland), 27
Colon, pelvic, adhesions of, causing obstruction (Donald M. MacLeod), 867
Colonial Office issues a set of returns concerning the white man in West Africa, 411
Combe, Charles, note on, 205
Complement fixation test in syphilis, report on, 877
Complement fixation tests, standardization of blood cell suspension in (F. C. Lewis), 637
Condensed milk. *See* Milk
Conference of delegates of the Metropolitan Medical Schools, 885
Congress, Australasian Medical, 659
Congress of Dermatology and Syphiligraphy, Rome, founds a Tommaso de Amicis prize, 691
Congress, French Medical, 423, 691
Congress of French speaking members of the medical profession, 296
Congress, annual, of the Ophthalmological Society of the United Kingdom, 582
Congress, Oxford Ophthalmological, 351
Congress, Pan-Hellenic, 1921, 853
Congress of physicians and surgeons, proposed world, 241
Congress of physiology, Paris, July, 1920, 514, 659
Congress for public health, Dutch, 438
Congress of Royal Institute of Public Health, Brussels, 691, 743—Medicine and the State (Lord Dawson), 743
Congress of Royal Sanitary Institute. *See* Royal
Congress, Swiss medical, 543
Conjoint Board in England: Pass lists, 275
Conjoint Board in Ireland: Pass lists, 423
Conjoint Board of Scientific Societies: Annual report, 725
Conjoint Board in Scotland: Pass lists, 172, 588, 690, 755
Consultative Council. *See* Health Ministry
Consulting surgeon and house-surgeon, 518, 616
Consumption. *See* Tuberculosis
Contraction and retraction rings, 61. *See also* Labour
Convalescent Home for Professional Class Children (Broadstairs), reopening of, 376
COOKE, Arthur: *Groundwork of Surgery*, rev., 225
COOKE, Luther, appointed J.P. for County Palatine of Lancaster, 35
COOMBS, Carey: Irritable heart, 404
COOPER, Arthur: Prevention of venereal disease, 28—*The Sexual Disabilities of Man and their Treatment and Prevention*, rev., 771
COPE, V. Zachary (editor): *Pye's Elementary Bandaging and Surgical Dressing*, rev., 190
Copper alanin in inoperable cancer, 104, 174
CORBET, William: New lamps for old in obstetrics, 59
CORBETT, Sir Julian S.: *Naval Operations*, rev., 637
Cornea, prolonged retention of foreign body in (R. Chambers), 363
...ner for Westminster, and what the soldier ...ed, 716
...orporation tax (parliamentary question) 650
Corrections, 138, 316, 726
Correlation of function. *See* Function

Correspondence:
Adenoids, treatment of, 238, 310, 349, 407. *See also* Nasal drill
Air-way infections, 812
Ante-partum haemorrhage, treatment of, 753
Aortitis and aortic regurgitation, 586, 656, 688 754
Appendicectomy by a new route, 416
Arsenic in lethargic encephalitis, 655
Artificial pneumothorax, 522
Cancer of cervix uteri, treatment of, 850
Cancer, experimental induction of, 850
Cancer of uterus. *See* Uterine
Carcinoma of thyroid, 454, 586
Circumcision, a barbarous and unnecessary mutilation, 620
Civil motor ambulance service, 784
Clinical centres, 520
Clinical research, 311
Contraction and retraction rings, 61
Dental caries and oral osmosis, 585
Diagnosis and treatment, 619
Duodenal ulcer and the hypertonic stomach 655 688
Dyspepsia, 380
Ear, running, treatment of, 382
Emotion, measurement of, 381
End of the war, 383
Encephalitis, epidemic, 722
Encephalitis lethargica, 621
Epidemic diseases in Mauritius, 383
Ethyl chloride, safety of 485
Fees for treatment of school children, 883
Fibroids complicating pregnancy, hysterectomy, recovery, 554
Forerunners of Harvey in antiquity, 58
Forgetting, psychological repression, 98, 131, 169, 201, 236, 274
Fracture dislocations of the ankle, 62
Future provision of medical services. *See* Medical
General practitioners and the health services, 753, 784
Heat hyperpyrexia, 485, 521
Horsley, Sir Victor, proposed memorial to, 271, 370, 418, 785
Hospitals, co-operation between, 418
Hypernephroma of ovary, 133
Ileo-caecal valve, 553
Indian Medical Service 554
Indian Medical Service: Is it worth while? 307
Indian Medical Service, temporary commissions, 96, 168, 200, 382, 417
Influenza and epidemiology, 235
Influenza, protective inoculations against, 309
Intraspinal pressure in acute disease, 311
Intravenous protein therapy, 380
Irish motor deadlock, 132
Local clinical laboratories, 59
Machinery of the Association, 63
Malaria, treatment of, 199, 235, 272, 381, 453
Medical discovery, awards for, 486, 519
Medical literature for Vienna, 484
Medical services, future provision of, 783, 812, 850, 882
Medical societies, international organization of, 272
Memorial to the officers and men of the R.A.M.C. who fell in the war, 307
Meninges, permeability of to arsenic, 785
Mentally defective, 554
Mental disorder, treatment of, 851
Mental disorders, physical basis of, 415, 452
Mental treatment, early, and the rights of the subject, 689
Milk sterilized by electricity, 722
Motors, taxation of, 555
Nasal drill, 310, 487. *See also* Adenoids
"New lamps for old" in obstetrics, 59, 97, 127, 170, 202
Nyctalopia or hemeralopia, 555
Order of St. John, 171
Osler, Sir William, biography of, 522
Our opportunity, 484, 520
Pancreas, diagnosis of disease of, 553
Pancreatitis, chronic, 62, 132, 236
Panel practitioners and vaccination, 883
Pensions referee, work of, 132
Polish Red Cross Society of Great Britain, 884
Prophylaxis and venereal disease amongst the Anzacs, 202
Protein therapy, intravenous, 380
Public health versus the State, 96, 127, 167, 237, 308, 349, 382, 416, 454, 520, 586, 656
Quinine administration, mode of, 28, 60 99, 130, 168, 454
R.A.M.C. as a career, 29
Rare accidents presumed due to negligence, 554
Relapsing fever and ticks. *See* Ticks
Rockefeller Foundation gifts, 883
Sanatorium hospital for the well-to-do, 883
Sand-fly fever in Mesopotamia, 620
Scottish colliery surgeons and the Miners' Union, 171, 239
Senior surgeon commanders, R.N., 454

Correspondence (*continued*):
Septic peritonitis, treatment of, 656
Shingles, varicella, epilepsy and the weather, 487
Small-pox in Scotland, 785
Spelman, Dr. A. P., death of: an appeal, 689
Spleen, apparent spontaneous rupture of a normal, 63
Sterility, 274, 349
Surgical war honours, 236
Syme the discoverer of waterproofing, 521
Syphilis, early diagnosis of, 416, 486, 620, 688, 753
Temporary commissions I.M.S. *See* Indian
Territorial Force, 309, 350, 383, 417
Territorial general hospital staffs, 236
Ticks and relapsing fever, 97, 132, 200, 235, 273, 310, 380
Tonsils, a plea for, 199, 722, 851
Tuberculosis as affected by the war, 585
Tuberculosis, pulmonary, early diagnosis of, 753
Tuberculosis, pulmonary, treatment of in private practice, 552
Tuberculosis sanatoriums, 619, 688
Tuberculosis village settlements, 552
Tumours, origin of, 132
Uterine cancer, treatment of, 452, 521, 554, 585
Uterine cancer complicating pregnancy and the puerperium, treatment of, 452
Vaccinal condition of small-pox carriers, 851
"Vagasthenia," 813
Venereal disease prevention, 28, 61, 98, 128, 273, 311
Vienna, distress in, 29
Village tuberculosis settlements. *See* Tuberculosis
War honours, 312, 555, 586
War records, 723

Cost of living (parliamentary question), 844
Cottages, timber, Ministry of Health standard specification for, 418
COTTON, W.: Localization of foreign body, 327
Council, General Medical: Number of medical and dental students, 102—*Minutes*, rev., 331—Election of Direct Representative to fill vacancy: Bill to amend the Medical Council Act introduced in Parliament, 685; Bill read a second time, 843

COUNCIL, LONDON COUNTY:
Health services and hospitals in London, 752
Influenza, precautions against, 205
Medical inspection and treatment of school children, 483
Medical officers, appointment of, 483
Medical practitioners' fees in midwives' cases, 348
Medical staff of, 379
Medical treatment for fee-paying pupils, 387
Venereal clinics in London, 414
Venereal prophylaxis, 166

Council, Worcestershire County, whole-time medical appointments under, 654
Counter-irritation, value of, 856
County health administration, Cheshire, 58
Cow, a tuberculous (J. E. Scales), 400
CRAIK, Robert: Simple treatment of ringworm of the nails, 185
CRAMER, W.: Nature and treatment of hyperpyrexial heatstroke, 343
CRAWFORD, Alexander David, obituary notice of, 70
CRAWFORD, Barbara G. R.: Abortifacients and preventives, 242
CRAWSHAW, Captain J. W.: Treatment of cerebro-spinal fever, 750
Cremation, progress of, 513
Cress, consumption of in large quantities causes dysuria, vesical spasm, etc. (Leclerc), 637
CRICHTON-BROWNE, Sir James: Prevention of venereal disease, 623—Prevention and treatment of insanity (Maudsley Lecture), 749
CRILE: Treatment of peritonitis, 376
Criminal Law Amendment Bills (parliamentary question), 414, 482, 879
Crippen, Hawley Harvey, Trial of, rev., 299
Crippled children, care of (G. R. Girdlestone), 697. (O)
Crippled and disabled men, *Handicapped Worker* issued by New York Institute for, 829
CROFTON, W. M.: Association of lethargy with the influenza bacillus, 431. (O)
CROMBIE, John Liddle, obituary notice of, 658
CROOKSHANK, F. G.: First principles and epidemiology, 186—Encephalitis lethargica, 621
CROSLAND, George William Kilner, obituary notice of, 137
CROSSLEY, Leonard: Tuberculosis sanatoriums, 688
CUMMINS, Colonel S. L.: Oxygen therapy, 152
Cunningham's Manual of Practical Anatomy, rev., 367
CUSHING, Harvey: Biography of Sir William Osler, 522
Cyclopegia in routine refraction work (N. Bishop Harman), 598. (O)
Cyst, ectopic ovarian (J. W. Thomson), 437
Cyst of ovary, large (J. Lionel Stretton), 80. (O)
Cystoscopy, review of books on, 541
Czernovitz, plague at, 855

D.

DA COSTA, John C.: *Principles and Practice of Physical Diagnosis*, rev., 331
Dairies, inspection of (parliamentary question), 378
D'ALBE, Fournier: Reading by ear, 692
DALE, Dr.: Alcohol as a therapeutic agent, 294
DANYSZ, J.: *Origine, Évolution, et Traitement des Maladies Chroniques non Contagieuses*, 839
DAS, J. L.: *A Manual of Conservancy*, rev., 471
DAVID, Dr.: *Quelques précisions rapides sur Salies de-Béarn et le rôle de ses Eaux en Chirurgie*, rev., 831
DAVIDSON, Mackenzie, Fund. *See* Fund
DAVIDSON, W. Cameron: Treatment of profuse sweating in axillae, 242
DAVIES, A. Lloyd: Suppurative arthritis and peritonitis after acute bronchopneumonia, 501
DAVIES, Ivor J.: Bronchiectasis, 767
DAVIES, Sidney: Public health versus the State, 238, 349, 454
DAVIES-JONES, Charles: Forgetting, psychological repression, 237
DAVIS, Haldin: Dermatitis artefacta in the army, 433. (O)
DAWSON, Sir Bertrand, takes the title of Baron Dawson of Penn, 269—Dinner to, 337—Medicine and the State, 743—Future provision of medical services, 800
DAWSON, W. S.: Treatment of malaria, 600
Deaths and Births. *See* Births
Death rate of illegitimate infants (parliamentary question), 378
DEAVER, John B.: *The Breast: its Anomalies, its Diseases, and their Treatment*, rev., 675
Defective children, industrial schools for (parliamentary question), 269
Deficiency disease, with special reference to gastro-intestinal disorders (Robert McCarrison), 822. (O)
Deficiency diseases (scurvy and beri-beri)—Treatment and management of (W. H. Willcox), 73. (O)
Deficiency diseases in Vienna (leading article), 477
Degrees, registrable foreign, 786
DE LAET: Origin of polymorphonuclear leucocytes, 93
DELANEY, P. J.: The death of Dr. A. P. Spelman: An appeal, 689
Delhi, maternity and welfare exhibition at, 618
Delirium tremens, treatment of (W. Starkey), 47—(Richard Eager), 114
Demobilization of medical students (parliamentary question), 720
Demobilized, handbook for, 385
Denmark: Investigations into various types of pneumococcus in, 557—Compulsory notification of lethargic encephalitis in, 659
Dental caries and oral osmosis, review of book on, 189—Correspondence on, 585
Dental legislation, proposed (parliamentary question), 305
Dental sepsis in children (S. F. St. J. Steadman), 186—Discussion on, 187
Dental students, number of, 102
Dentistry, doctorate of to be created in Prussia and Baden, 589
Dentists Act, revision of (parliamentary question), 615, 686, 843, 844
Dentists' registration, future of, 549
DENYER, Stanley E.: Diurnal enuresis in a child: treatment with galvanism, 795
DERCUM, Francis X.: *Rest, Suggestion, and other Therapeutic Measures in Nervous and Mental Diseases*, rev., 367
Dermatitis artefacta in the army (Haldin Davis), 433. (O)
Dermographism, case of (Captain H. S. Carter), 149
Detection of suture material. *See* Suture
Deutsche Kongress für Innere Medizin, 557
Devon: School medical officers' salaries, 686, 847
DEWAR, Michael: Future provision of medical services, 850
Diabetes mellitus, dietetic treatment of (R. T. Williamson), 399. (O)
Diagnosis, surprises in (Edmund I. Spriggs), 563. (O)
Diagnosis and treatment, 619
Diamond jubilee of a Scottish practitioner (George Banks), 127
Diathermy, review of books on, 869
Dickens on the treatment of malaria, 756
DICKIE, W. S.: Treatment of uterine cancer, 452
Dictionary, new English, medical terms in, 683
Diet, deficient, effect of on monkeys (Lieut.-Col. Robert McCarrison), 249. (O)
Dietetic treatment of diabetes. *See* Diabetes
DIGBY, Kenelm H.: Plea for the tonsils, 722
Diphtheria in London, 27
Diphtheria, deaths from in Australia, 632
Diphtheria bacilli in the throat (P. Hartley and C. J. Martin), 796
Diphtheria, naked-eye diagnosis of (H. Drinkwater), 259
Diphtheria, measles, and scarlatina, review of books on, 573
Diphtheroid group (J. G. Adami), 14
Diphtheroid septicaemia (H. E. Roaf), 13
Diploma in medical radiology and electrology, 55
Diplomas, special, 303
Disabled ex-service men, number of in training (parliamentary question), 650—Circular from Ministry of Health *re* employment of, 691
Disability partly due to military service (parliamentary question), 345
Disability pensioners' rights (parliamentary question), 482
Disclaimer, 138
Discovery, notice of, 138, 315
Disease, acute, intraspinal pressure in, 311
Diseases, rare, 374
Dispatch, Afghanistan, 422
Diverticulitis (W. H. Maxwell Telling), 82—Discussion on, 84, 115—Leading article on, 119
Diverticulitis, etiology of (C. H. Willey), 631. (O)
Divorce law, medical aspects of (parliamentary questions), 583
DIXON, Montague: Parental blood in haemorrhage of the newborn, 539
Doctors and motors. *See* Motor
Doctors' threatened strike (Castlecomer Union), 167
Dogfish, spiny, poison of (H. Muir Evans), 287. (O)
Dogs' Bill in America, 512
Dogs' Protection Bill (parliamentary question), 269, 305, 448—(Leading article), 301—Text of the bill, 305—Second reading talked out, 448
DOMVILLE, Edward J.: Proposal for a memorial to Sir Victor Horsley, 271, 785—Acts as consulting surgeon and house-surgeon, 518
DONALDSON, Robert, appointed pathologist and curator of the museum of St. George's Hospital, 71
DONCASTER, Leonard, obituary notice of, 815
DONELAN, James: Copper alanin in inoperable cancer, 104
DONKIN, Sir Bryan: Prevention of venereal disease, 623
DONOVAN, Lieut.-Col. C. A.: "Froghopper" as a blood-sucking insect, 220
DOUGAL, D.: Caesarean section for dystocia, 224—(and J. W. BRIDE), Etiological factors in abortion, 632. (O)
DOUGAL, Dr.: Factors in abortion, 540
DOUGLAS, Lieut.-Col. C. G.: Oxygen therapy, 152
DOWNS, William Campbell, obituary notice of, 70
DRAKE-BROCKMAN, R. E.: Ticks and relapsing fever, 273—Treatment of malaria, 381
DREVER, James R.: Scottish colliery surgeons and the miners' union, 171
DREW, Douglas: Appendicectomy by a new route, 416
DREW, H. V.: Intraspinal pressure in acute disease, 311
DRINKWATER, H.: Naked-eye diagnosis of throat infections, 259
Dropwort, water, fatal poisoning by (T. Harvey Thomson), 795
Drug idiosyncrasy, discussion on, 405
Drugless healer sentenced (Arthur Barker), 314
Drugs, antipyretic, and cold water, 206
Drugs, Dangerous, Bill (parliamentary question), 650, 720, 843—Leading article, 714
Drugs, retail price of, 474
DRUMMOND, Hamilton: Diverticulitis, 85
Drunkenness in murder cases, House of Lords judgement in Beard case, 383
Drunkenness statistics (parliamentary question), 346
Dublin: Postal arrangements, 234—Radium Institute, 550
DUDGEON, L. S.: Intramuscular injections of quinine, 25
DUKE, Lieut.-Col. Joshua, obituary notice of, 314
DUNCAN, F. Martin: Photomicrographs of acari from lungs of *Macacus rhesus*, 276
DUNCAN, J. W.: Erysipelas, 278
DUNDAS, Grace H. Giffen: Illegitimate births and ophthalmia neonatorum, 436
DUNLOP, J. Leeper: Ticks and relapsing fever, 132
DUNN, Edwin Lindsay, obituary notice of, 204
Duodecim. See Acta Societatis
Duodenal ulcer. *See* Ulcer
Dupuytren's contraction not scheduled under Workmen's Compensation Act, 242
DURET, H.: *Traumatismes cranio-cérébraux*, rev., 830
DUTCH, Henry: Simple speculum illuminator, 174
Duty and discipline movement, 589
DYER, Francis Norman Victor, obituary notice of, 172
Dysentery, amibiasine in, 190
Dysentery, bacillary, common complications of in military practice (Philip Manson-Bahr), 791. (O)
Dysentery, some unusual forms of (George C. Low), 255. (O)
Dysentery in lambs, isolation of an organism which is probably the cause of, 278
Dyspepsia, appendix and gall bladder (Sir Humphry Rolleston), 317. (O)—Correspondence on, 380
Dyspnoea, acute asthmatic, caused by filarial embryos (F. F. Bana), 796

E.

EAGER, Richard: Treatment of delirium tremens, 114
EAGER, Wilson, obituary notice of, 754
Ear (middle) disease, suppurative, plea for early treatment of (H. Smurthwaite), 467. (O)
Ear, running, treatment of (T. A. MacGibbon), 294—Correspondence on, 382
EASON, H. L., appointed superintendent of Guy's Hospital, 241
EASTBURN, A. S., sentence on, 384
Eaton Hall, Chester, hospital for convalescent soldiers (parliamentary question), 686
EAVES, Captain Wilberforce Vaughan, obituary notice of, 276
ECCLES, McAdam: Diverticulitis, 85
ECCLES, O.: Contraction and retraction rings, 61
ECKERMAN, Ragnar: *Dental Caries in Relation to Oral Osmosis*, rev., 189 - Letter on, 585
Eclampsia, expectant treatment in (W. Gough), 636
Eclampsia, nature of (leading article), 479
Eclampsia treated by blood transfusion (W. Blair Bell), 625. (O)
Eclamptic toxin, path of (J. F. D. Hunter), 469
Economic questions of the day, pamphlet on, 815
Ectopia vesicae treated by implantation of the ureters in the rectum (C. C. Holman), 149 (O)
EDDOWES, Alfred: Cutaneous manifestations in a case of cervical fistula, 326. (O)
EDEN, Thomas Watts, (and Cuthbert LOCKYER), *Gynaecology for Students and Practitioners*, rev., 770

EDINBURGH:
Edinburgh Medical Journal, 127
Graduate courses, 349
Growth of the city, 617
"Liberton," 810
Lister Memorial Institute, proposed, 95
Neo natal death rate in, 270
Royal Maternity and Simpson Memorial Hospital, 809
Stillbirths rate in, 687

Edinburgh Medical Journal, 127
EDINGTON, Colonel G. H.: *With the 1/1st Lowland Field Ambulance in Gallipoli*, rev., 503
EDRIDGE-GREEN, F. W.: *The Physiology of Vision, with Special Reference to Colour Blindness*, rev., 502—*Card Test for Colour Blindness*, rev., 502
EDWARDS, Charles, appointed J.P. for borough of Bridport, 589
EDWARDS, Francis H.: Physical basis of mental disorders, 452
EDWARDS, Robert, obituary notice of, 813
Eggs, dried, 856
Egypt: Report on pellagra outbreak in a refugee camp, 805—Plague in, 815
E. histolytica, house-fly as a carrier of (P. A. Buxton), 142. (O)
Ekaterinodar, medical school established at, 837
Electrology, diploma in, 55
ELFORD, W. H.: Treatment of ringworm, 867
ELIZALDE, Pedro I.: *Anatomia patologica y patogenia de la sifilis pulmonar*, rev., 869
ELLIOT, H.: *Modern Science and Materialism*, rev., 89
ELLIOT, Lieut.-Col. R. H.: Temporary commissions I.M.S., 96, 168, 201, 554—Diagnosis of glaucoma, 279. (O)—Indian Medical Service, 554
ELLIOT, Captain W. E., appointed Secretary of Committee of Medical Members of House of Commons, 344
ELLIOTT, Major George Blacker, obituary notice of, 524
ELMES, J. H.: Dickens on the treatment of malaria, 756
ELMSLIE, R. C.: *After-treatment of Wounds and Injuries*, rev., 868
EMBLETON, Dennis: Sphenoidal empyema and epidemic cerebro spinal fever, 7. (O)
Emotion, measurement of (A. D. Waller), 259—Correspondence on, 381
Empyema, sphenoidal, and epidemic cerebro-spinal fever (Dennis Embleton), 7. (O)
Empyemata, immediate closure of (Frank Hathaway), 734. (O)
EMRYS-ROBERTS, Professor: The Welsh mobile laboratory, 27
Encephalitis, case of: lethargy and myoclonus (James Camac), 704
Encephalitis, epidemic, committee appointed to report on by Bordeaux Society of Medicine, 457
Encephalitis, epidemic, myoclonic form of (Piero Boveri), 570. (O)—(E. W. M. Hubert Phillips), 634—Correspondence on, 722
Encephalitis, epidemic, virus of, 646
Encephalitis lethargica, 621—In Spain, 659—In Denmark, compulsory notification of, 659
Encephalitis lethargica (Netter and Achard), 193, 241
Encephalitis lethargica, acute, compulsory notification of, 71
Encephalitis lethargica, arsen 55
Encephalitis lethargica, case of (Maurice C. Barber), 500—(Captain A. Smith Goudie), 671
Encephalitis lethargica, cases in Roumania and Egypt, 512
Encephalitis lethargica, two typical cases (G. Bouché), 601
Encephalitis lethargica, circular from Scottish Board of Health, 452
Encephalitis lethargica, death from in Lincolnshire, 351
Encephalitis lethargica, diagnosis of (leading article), 409—Note on, 481
Encyclopaedia Medica, vol. vi, rev., 118
Endocarditis, malignant, in a war pensioner (J. A. Nixon), 435
Endocrine glands. *See* Glands
Endocrinology as an exact science (leading article), 644
England and Wales, class fertility in (T. H. C. Stevenson), 604—Vital statistics, 457, 752, 775, 802, 836 874
English and Chinese doctors, joint conference, 619
Enham village centre, basket-making shop to be erected, 150
Enteroptosis (Chalmers Watson), 797
Entomology, review of books on, 707
Entozoa, review of books on, 675
Enuresis, diurnal, in a child, treated with galvanism (Stanley E. Denyer), 795
Epidemiology, first principles of (F. G. Crookshank), 186
Epilepsy, literature dealing with influence of atmospheric conditions on, 173
Epilepsy and the weather, 282, 487
Epileptics, anaesthesia in, 526, 558, 624
Epsom College. *See* College
Erysipelas, treatment of, 242, 277, 316, 352—A correction, 316
Establishment licences, 590
Estimates (parliamentary papers on the), 413
Ethyl chloride, safety of, 485
Eugenics, national, Galton chair of (leading article), 803
Eusol in subtertian malaria, 303
Evans's Analytical Notes, 786
EVANS, Herbert: Urinary system and the *Bacillus coli communis*, 438
EVANS, H. Muir: Poison of the spiny dog-fish, 287. (O)
EVANS, Thomas Melancthon, obituary notice of, 487
EVE, Frank C.: Sedimentary cell for microscopical examination of cerebro-spinal and other fluids, 708
Everett *v.* Griffiths and Anklesaria, 522
EVERSHED, A. Reginald F., obituary notice of, 276
EWART, William, appreciation of George V. Perez, 456
Experiments on animals (parliamentary question), 305
Ex-service men: Professional training of (parliamentary question), 306, 650—Half-fare vouchers for men under treatment (parliamentary question), 650, 720
Eye, fundus of after death, 878
Eyelid, granuloma of, 458
Eyesight of miners, discussion on, 327
EYRE, Captain Charles R. B., appointed assistant surgeon to British Ophthalmic Hospital, Jerusalem, 525

F.

Facial trophoneurosis. *See* Trophoneurosis
Factory Surgeons, Association of Certifying, report, 335
FAIRBAIRN, John S.: New lamps for old in obstetrics, 127
FALTA, W. (and K. F. WENCKEBACH): *Wiener Archiv für Innere Medizin*, rev., 574
Fascia lata, uses of free transplants of, in surgery (G. Grey Turner), 79. (O)
Faucial and post-nasal lymphoid tissue in children, chronic infection of (Percival W. Leathart), 217. (O)
Federations for brain workers, 229
Fee, notification, and the end of the war, 344, 383—Ministry of Health's Statutory Order *re*, 659
Feeble-minded youth, trade teaching for, 558
Fees, army, for civilian doctors, 814
Fees, medical, increased in Chicago, 725
Fees, medical, under Workmen's Compensation Act (parliamentary question), 879
Fees, medical, for public work (Ireland), 655
Fees in midwives' cases, 348
Fees for treatment of school children, 883
FEILING, Anthony (and E. WARD): Familial form of acoustic tumour, 496. (O)
FELDMAN, W. M.: Needle in alimentary canal, 206—Diagnosis of disease of the pancreas, 553—*Principles of Ante-natal and Post-natal Child Physiology: Pure and Applied*, rev., 572
Fellowship of Medicine and Post-Graduate Medical Association: First general meeting, 305 - Number of graduates who attended emergency courses, 351—Note on, 779
Femur, gunshot fracture of (Sir Anthony Bowlby), 1. (O)
FERGUSON, Alexander, obituary notice of, 422, 621
FERGUSON, R. Bruce: *Aids to the Mathematics of Hygiene*, rev., 708
Fertility of various classes in England and Wales (T. H. C. Stevenson), 604
Fetal intracranial haemorrhage during birth (Eardley Holland), 868
Fetal movements, 71
Fever, epidemic cerebro-spinal, and sphenoidal empyema (Dennis Embleton), 7. (O)
Fever, cerebro-spinal, treated by monotypical serum (W. T. Munro), 430. (O)
Fever, cerebro-spinal, treatment of (Captain J. W. Crawshaw), 750
Fever, enteric, diagnosis of (parliamentary question, 449
Fever, enteric, and pyrexia of uncertain origin (leading article), 373
Fever, puerperal, antistreptococcic serum in (O. Hilton), 185
Fever, relapsing, in the East (W. H. Willcox), 222—Correspondence on, 380
Fever, relapsing, and ticks, 97, 132, 200, 235, 273, 310
Fever, sand-fly, in Mesopotamia, 620
Fever, scarlet, in London, 27
Fever, typhus, in the East (W. H. Willcox), 222
Fever, typhus: In Poland, 122, 614, 751 - In Russia, 751—Threatened western extension of (parliamentary question), 879
Fever, typhus, Rickettsia bodies in, 709
Fever, yellow, etiology of, 375—Indian committee on, 484
FFRENCH, Major E. G.: Early diagnosis of syphilis, 486
FFRENCH-MULLEN, Colonel Douglas, obituary notice of, 556
FIBIGER: Experimental induction of cancer, 680—Helminths in cancer, 777
Fibroid, subperitoneal, traumatic rupture of pedicle of (P. D. Turner), 829
Fibroids, results of hysterectomy for (J. W. Bride), 14
Fibroids complicating pregnancy: hysterectomy: recovery (R. de S. Stawell), 498. (O)—Correspondence on, 554
Filaria conjunctivae, the host of the parasite of found in man (Forbes), 4
Filarial embryos causing acute asthmatic dyspnoea (F. F. Bana), 796
Filariasis, further work on antimony intravenously in (Lieut.-Colonel Sir Leonard Rogers), 596. (O)
FILDES, Surgeon Lieut Commander P.: Toxic effects of arseno-benzol preparations, 51
Finance Bill, 677. *See also* Budget
FINDLAY, Leonard: *Syphilis in Childhood*, rev., 366
Finger-prints on documents, persistence of (C. A. Mitchell), 387
FIRTH, J. B. (and J. E. MYERS): *Elementary Practical Chemistry*, rev., 190
FIRTH, Colonel R. H.: *Musings of an Idle Man*, rev., 262
FISHER, Irving: *Effect of Diet on Endurance*, rev., 16
FISHER, Theodore: Aortitis and aortic regurgitation, 586, 688
FISHER, Walter: Pericranial effusion of blood, 206
Fistula, cervical, cutaneous manifestations in a case of (Alfred Eddowes), 326. (O)—Correspondence on, 424
Fistula, jejuno-colic, following gastro-jejunostomy (Charles Bolton and Wilfred Trotter), 757. (O)
FLAGG, P. J.: *The Art of Anaesthesia*, rev., 117
Flail joints and their treatment (Sir Robert Jones), 175. (O)
FLECHSIG celebrates the fiftieth anniversary of his doctorate, 815
FLEMMING, Chas. E. S.: New lamps for old in obstetrics, 202—Our opportunity, 484
FLETCHER, Rory: Nyctalopia or hemeralopia, 555
FLETCHER, Sir Walter: Appreciation of Sir Robert Morant, 420
FLEXNER: Portal for acute poliomyelitis, 343
Flies, house, as carriers of *E. histolytica* (P. A. Buxton), 142. (O)
Flies, house, review of books on, 607
Food, clothing, and medical aid for countries devastated by the war, sum required in United States to continue the supply of, 46
Food and disease, 816
Food and Drugs Acts: duties of local authorities, 173
Food factors, accessory, in infant feeding, discussion on, 328—Work on, 709
Food Ministry, continuation of the work of, 686
Food poisoning, review of book on, 225
Food supply of Germany (leading article), 301
FORBES: Parasite of *Filaria conjunctivae* found in man, 4
Forceps, Schultze's (Sir W. Smyly), 48
Forearm, ischaemic, contracture of (Arch. Young), 636
Foreign body in left bronchus (W. R. Cammock), 602—(Thomas Guthrie), 735
Foreign body, localization of (W. Cotton), 327
Foreign body in cornea, prolonged retention of (E. R. Chambers), 363
Foreign degrees, registrable, 786
Foreign mineral water resorts, 545
Forgetting, psychological repression (Alfred Carver), 46. (O)—Correspondence on, 98, 131, 169, 201, 236, 274

FORNI, G. G: *Ferite del Capo e dell' Addome in un Ambulanza Chirurgica*, rev., 541
FORSYTH, Noel C.: Use of antistreptococcic serum in quinsy, 361. (O)
FOSS, R. Stafford: Treatment of gonorrhoea in women, 434. (O)
FOSTER, Alfred: Early diagnosis of pulmonary tuberculosis, 753
FOTHERGILL, W.: Hydatid mole, 224
FOULERTON, Alexander G. R.: Poisoning by arsenobenzol compounds used in the treatment of syphilis, 864. (O)
Fracture dislocations of ankle, 62
Fracture of femur, gunshot (Sir Anthony Bowlby), 1. (O)
Fractures of skull in civil life, lessons of the war for treatment of (C. M. Kennedy), 630. (O)
Fractures, treatment of (Major M. Sinclair), 198

FRANCE:
Army Medical School at Val de Grâce, 55
Institute of Hygiene of Paris, 878
International Society of Surgery, next meeting, 144, 351
Maternity benefit for suckling mothers, 12
Medical Congress. *See* Congress
Medical History Society renews its activities, 387
Number of wounded and sick demobilized soldiers under treatment in hospitals, 457
Paris hospitals, scheme for improvement of, 283
Pharmacopoeia, additions to, 613
School of puericulture to be inaugurated at Edith Cavell Hospital, Paris, 557
See also Paris

FRANCIS, Alexander: Nasal drill, 310
Franco-Jugo-Slav medical union, 387
FRÄNKEL, Sigmund: *Praktikum der medizinischen Chemie*, rev., 16
FRANKS, Sir Kendal, obituary notice of, 723
FRASER, A. Mearns: Prevention of venereal disease, 686
FRASER, Peter, obituary notice of, 204
FRASER, Sir Thomas Richard, death of, 55—Obituary notice of, 100
FREEMAN, John: Susceptibility to foreign proteins, 188—Toxic idiopathies, 403
FREEAR, Kathleen (and others): Production of clean milk, 876
FREER, H. W.: Public health versus the State, 96, 416, 586
FREMANTLE, Lieut.-Col. F. E.: Elected M.P. for St. Albans, 27—Elected Chairman of Housing Committee of London County Council, 457
FREMLIN, H. S.: Preparation of calf lymph, 368
FRENCH, E. G.: Early diagnosis of syphilis, 688
French Medical History Society renews its activities, 387
FREUD, Sigmund: *Totem and Taboo: Resemblances between the Psychic Lives of Savages and Neurotics*, rev. 502
FRIEDENWALD, Julius (and John RUHRÄH): *Diet in Health and Disease*, rev., 262
Friedmann's remedy for tuberculosis, Prussian committee of inquiry into, 315
Friedmann's turtle vaccine, 94
Friendly societies and nursing benefits (Australia), 881
Friends' Emergency and War Victims' Relief Committee, 885
"Froghopper" as a blood-sucking insect (Lieut.-Col. C. Donovan), 220
FRY, Captain H. J. B.: Use of immunized blood donors in treatment of pyogenic infections by whole blood transfusion, 290. (O)
FRY, P. V., presentation to, 518
Fuel Research Board, report, 584
FULLARTON, J. H., obituary notice of, 723
FULLERTON, Andrew (and T. S. S. HOLMES): Ruptured gastric ulcer in an old man, laparotomy, recovery, 218. (O)
Function, correlation of (W. Blair Bell), 787. (O)
Fund, King Edward's Hospital: Statement *re* London hospitals, 451—Committee appointed to act in absence of the Prince of Wales, 457—Statistical Report Committee, 518—Annual meeting, 687
Fund, the King's (parliamentary question), 345
Fund, Mackenzie Davidson Memorial, 341
Fund, Naval Medical Memorial, 457
Fund, Queen Alexander's Field Force, demobilization of, 315
Fund, R.A.M.C. Central Mess, annual meeting, 587
Fund, R.A.M.C., and Officers' Benevolent Society, annual meeting, 587
Fund, Royal Medical Benevolent, 154, 262, 476, 504, 608, 802—War Emergency Fund, 303
Fund Guild, Royal Medical Benevolent, appeal at annual meeting, 457
Funds, Auxiliary R.A.M.C., 35, 685, 689—Annual meeting, 689
FURLONG, Wm. Verner: Atropine in acute suffocative catarrh, 219
FYFFE, Lieut.-Col. William Kington, obituary notice of, 690

G.

GAGE, Captain Harold C.: *X-ray Observations for Foreign Bodies and their Localization*, rev., 153
GAIGER, S. H., isolates an organism which is probably the cause of dysentery in lambs, 776
GALBRAITH, Walter W.: Effusion into both knee-joints due to congenital syphilis, 636
GALLAVARDIN, L.: *La tension en clinique. Sa mésure, sa valeur séméiologique*, rev., 503
Gall-bladder dyspepsia. *See* Dyspepsia
GALLICHAN, Walter M.: *The Critical Age of Women*, rev., 708
Gall stones (R. P. Rowlands), 665. (O)
Galton chair of national eugenics (leading article), 803
Galvanism in treatment of diurnal enuresis in a child (Stanley E. Denver), 795
GANGI, Salvatore: *Il Colpo di Calore*, rev., 89
GARDINER, Frederick: *Handbook of Skin Diseases*, rev., 676
GARDINER, J. Stanley (and L. A. BORRADAILE): *The Cambridge Notebook for Practical Biology (Zoology)*, rev., 154
GARRATT, G. C.: Severe anaphylaxis, recovery, 72
GARROD, Sir Archibald E., appointed Regius Professor of Medicine at Oxford, 344—Schorstein lecture on diagnosis of disease of pancreas, 459. (O)—Elected to a studentship at Christ Church, 717
GARROOD, J. R.: Paraffin wax for first-aid treatment in burns, 539
GARRY, T. Gerald: Forerunners of Harvey in antiquity, 58
Gas, arseniuretted hydrogen, poisoning by (Thomas H. Wignall), 826. (O)
Gas poisoning (Sir Wilmot Herringham), 221—Discussion, 222
GASTER, Leon: Industrial lighting and its relation to efficiency, 557
Gastric pain, origin of, 162
Gastric ulcer. *See* Ulcer
Gastro-jejunostomy, gastric ulcer after (F. Bolton Carter), 13
Gastro jejunostomy followed by jejuno-colic fistula (Charles Bolton and Wilfred Trotter), 757. (O)
GAUVAIN, Sir Henry, luncheon to, 166
GAVRILOVITCH, Michailo, appointed President of Serbian Red Cross Society in Great Britain, 224
GAY, Frederick P: *Typhoid Fever*, rev., 88
GEDDES, Sir Auckland, appointed British Ambassador in Washington, 344
GEMMELL, A. C.: Sudden death at attempted abortion, 624
General Medical Council. *See* Council
General practitioners and the health services. *See* Health
Geneva Red Cross Congress, 377. *See also* Red Cross
German universities, appointment of professors to, 277
Germany: Food supply of (leading article), 301—Tuberculosis statistics in Germany and the Rhine provinces, 837—Proposed tuberculosis law, 315—Small-pox in (parliamentary question), 346
Gestation, length of, 558
G.H.Q. (Montreuil-sur-Mer), rev., 117
GIBBES, C. Chapman (and others): Ten thousand recruits with doubtful heart conditions, 730. (O)
GIBSON, H. E.: Comparison of two methods of administering arseno-benzol compounds in syphilis, 114. (O)
Giessen, Liebig museum opened at, 557
GILLETT, A. Scott: Tonsil bayonet, 472
GIRDLESTONE, G. R.: Care of crippled children, 697. (O)
Gland, thyroid, papilliferous carcinoma of (Basil Hughes), 362. (O)
Glands, endocrine, and the nervous system (Sibyl I. Welsh), 769
Glands of internal secretion and reproductive organs, functional connexion between (Evelyn E. Hewer), 293. (O)
Glasgow: Erskine Limbless Hospital, 197—Post-graduate courses in, 721—Radium in cancer, 483—Small-pox in, 483, 584, 617, 687, 721, 782, 881—Western Infirmary, 58
GLASSON, C. J.: Method of treating tinea, 219. (O)
Glaucoma, diagnosis of (Lieut.-Col. R. H. Elliot), 279. (O)
GLEN, A. Kennedy: Panel practitioners and vaccination, 883
GLYNN, E. E.: Spirochaetes in bronchiectasis, 14—Ovarian hypernephromas, 572
GODDARD, Henry Herbert: *Psychology of the Normal and Subnormal*, rev., 470
Golf tournament (Bromley Division), 785
Gonorrhoea, number of cases notified in Western Australia, 724
Gonorrhoea in the female, diagnosis of (W. W. King), 364—Treatment of (R. Stafford Foss), 434. (O)
Gonorrhoeal vulvo-vaginitis in a newborn infant (Margaret Rorke), 671
GOODALL, Alexander: *Aids to Histology*, rev., 190
GOODALL, J. Strickland: Presentation to, 725—(and others) Ten thousand recruits with doubtful heart conditions, 730. (O)
GORDON, A. Knyvett: Hypernephroma of ovary, 133
GORDON, J. F.: The tertium quid, 206
GORDON, M. H.: Simple method of cultivating the micro-organism of actinomycosis, 435
GORDON, William: Epidemiology of phthisis, 594. (O)—Future provision of medical services, 882
GORMAN, Captain A. D.: Subcutaneous injections of camphor, 828
GOUDIE, Captain A. Smith: Case of encephalitis lethargica, 671
GOUGH, George W.: *Half past Twelve*, rev., 771
GOUGH, W.: Expectant treatment in eclampsia, 636
Government policy as to hospitals. *See* Hospitals, voluntary
GOW, A. E.: Intravenous protein therapy, 284. (O)
GOYDER, David, obituary notice of, 204
Graduate education in the United States (Sir Humphry Rolleston and H. J. Waring), 833
Graduate study, aims and methods of (Sir Humphry Rolleston), 77. (O). *See also* Post-graduate
GRANT, Sir James Alexander, death of, 232—Obituary notice of, 487
GRANT, William F.: Pregnancy during amenorrhoea, 278
Granuloma of eyelid, 458
Grateful country, 316
GRAVES, T. C.: Mammary sarcoma in old age, 81
GRAY, H. Tyrrell: Atropine in pylorospasm and pyloric hypertrophy, 551
GRAY, J. Pereira: Shingles, varicella, epilepsy, and the weather, 487—Anaesthesia in epileptics, 558
Greek science and modern science 748
GREEN, Charles David (and Sir Charles A. BALLANCE): *Essays on the Surgery of the Temporal Bone*, rev., 798
GREEN, Charles E., obituary notice of, 95
Greenwich Hospital pensions, 203
GREENWOOD, Major: Forgetting, psychological repression, 151
GREVES, E. Hyla, name of, accidentally omitted from current issue of *Medical Directory*, 242
GRIMSDALE, Harold B. (and E. BREWERTON): *Textbook of Ophthalmic Operations*, rev., 606
Grocers' scholarships for research in sanitary science, 489
GROSE, Staff Surgeon Samuel, obituary notice of, 70
GROVE, W. R.: Calcium chloride as a haemostatic, 47
GROVES, E. W. Hey: *Surgical Operations: A Textbook for Nurses*, rev., 471
GUBB, Alfred S.: Prevention of beri-beri, 72—Mode of quinine administration, 131
GUICCIARDI, Giuseppe, becomes editor of *Rivista Sperimentale de Freniatria*, 855
GULLAND, G. Lovell: Appreciation of Sir W. Osler, 67
Gunshot fracture of femur (Sir Anthony Bowlby), 1. (O)
Gunshot injuries, review of book on, 707
GURNEY-DIXON, S.: *Transmutation of Bacteria*, rev., 297
GUTHRIE, Thomas: Foreign body in bronchus, 735
Gynaecology and obstetrics, vaccines in (Robert Robertson), 437
Gynaecology, review of books on, 15, 708, 770

H.

HADDON, John: Clinical research, 311—Food and disease, 816
Haematoporphyrinuria (G. E. Anson), 634
Haemorrhage, accidental (Gordon Ley), 437
Haemorrhage, ante-partum, treatment of (Hastings Tweedy), 672—Discussion, 672—Correspondence on, 753
Haemorrhage, fetal intracranial, during birth (Eardley Holland), 868
Haemorrhage of the newborn, parental blood in (Montague Dixon), 539
Haemostatic, calcium chloride as a (W. R. Grove), 47
Hair, grey, and herpes zoster (G. Lenthal Cheatle), 219
HALDANE, J. S.: Oxygen therapy, 151
HALE, Arthur J.: *The Applications of Electrolysis in Chemical Industry*, rev., 154
HALES, Stephen, account of, 173
HALE-WHITE, Sir William: Alcohol as a therapeutic agent, 295—Drug idiosyncrasy, 405
HALLAM, Rupert: Radium therapy, 736
Hallucinatory psychosis. *See* Psychosis
HALSTEAD, J. I.: Future provision of medical services, 882
HAMILL, P.: Oxygen therapy, 152—(and others) Ten thousand recruits with doubtful heart conditions, 730. (O)
Hampstead Research Institute. *See* Research
Hand, physiopathic paralysis of, and its causation (R. G. Abercrombie), 764. (O)
Handicapped Worker, 829
HANDLEY, W. Sampson: Diverticulitis,

FANNAY, M. G.: Early diagnosis of syphilis, 620
HANSCHELL, H. M.: Phagedaena of Hunterian chancre following treatment with novarsenobenzol, 498. (O)
Hard hit by the war, 303
HARDWICKE, W. Wright: *Sight Testing Made Easy*, rev., 471
HARFORD, Charles F.: "Miners' nystagmus," 138
HARMAN, N. Bishop: Cycloplegia in routine refraction work, 598. (O)
HARRIS, Wilfred: Chronic paroxysmal trigeminal neuralgia and its treatment, 693 (O)
HARRISON, E.: Early diagnosis of syphilis, 364
HARRISON, Lieut.-Colonel L. W.: *Manual of Venereal Diseases for Students*, rev., 638
Harrogate: Appoints an analytical chemist to the baths, 124—Medical dinner at, 584—Corporation pamphlet on, 815
HART, Bernard: Modern treatment of functional nervous disorders, 207. (O)
HART, David Berry: Puerperal sepsis, 296—Obituary notice of, 852
HARTLEY, P. (and C. J. MARTIN), Diphtheria, 796
HARVEY, forerunners of in antiquity, 58
HASSALL, G. W.: Anaesthesia in epileptics, 624
HASTINGS, Walter B., obituary notice of, 70
HATHAWAY, Frank: Immediate closure of empyemata, 734 (O)
HATSCHEK, Emil: *Laboratory Manual of Elementary Colloid Chemistry*, rev., 543
HAUSER: Visceral analgesia in tabes, 480
Havana, epidemic of meningitis in, 755
Hay fever, treatment of, 458, 490
HAYCRAFT, J. B.: Penetrating wound of chest, thoracotomy, suture of pericardium, 184. (O)
HAYES, Maurice R. J.: Irish motor deadlock, 132
HAYNES, F. H., presentation to, 270—Inherited syphilis, 765. (O)
HAYTON, C. H.: Air-way infections, 812
Hazell Annual and Almanack for 1920, rev., 49
HEAD, Henry: Elements of the psychoneuroses, 389. (O)
Head lamp, 472
Health Conference, International, 587

HEALTH MINISTRY:
Administrative posts, 808
Appointments, 785
Blind, deaf, and crippled students, training for, 584
Blind, welfare of, joint committee appointed, 276
Boarding-out of children, 782
Complement fixation test in syphilis, report on, 877
Compulsory notification of acute encephalitis lethargica and acute polio-encephalitis, 71
Consultative Council's interim report, 739, 746—Leading article on report, 746
Discharged and disabled officers and men, circular *re* employment for, 691
Dwellings, unoccupied, utilization of (parmentary question), 844
Expenditure (parliamentary question), 306, 649
General Health Council, 270
General Nursing Council, 616
Health of the people, 583
Health Services Bill, 751
Health survey, memorandum on, 267
House demolition, rules for procedure of, 623
Housing plans, volume on, 885
Infants' and children's homes and hospitals, 880
Influenza prevention, memorandum on, 19, 23, 205
Irish Public Health Council, 197, 870
Land for housing, amended regulations, 277
Maternity and Child Welfare Centres in England and Wales, 379
Maternity homes and hospitals, memorandum on, 299, 847
Medical staff of, 808
Milk for children and mothers, 124
Notification fee, 344, 659
Number of people employed by, 720
Nursing service, 450
Outdoor medical officers, new staff of, 407, 476
Parliamentary questions, 378, 450, 583, 720, 808
Poor Law Institution's Order, revival of Article 4, 489
Salaries of medical officers of local authorities, 230
Sale of Food and Drugs Act, memorandum on duties of local authorities, 173
Scottish Board of Health, 127, 195, 418, 452, 518, 654, 752
Smoke abatement, 303
Timber cottages, 418
Venereal disease, tests of cure in, memorandum on, 89—Leading article on above, 92—Deputation *re* professional secrecy (protection for medical officers of clinics), 691—Treatment centres, 815
Village tuberculosis settlements, deputation to Minister of Health, 476
Welsh Board of Health, 345, 809
Welsh Consultative Council's report, 781, 809
Work of, 378
Health of the people (parliamentary question), 583
Health Services Bill, 751
Health services and the general practitioner, 753, 784
Health services and hospitals in London, 752
Health services. *See also* Medical services
Health surveys, Ministry of Health memorandum, 267
Health work, co-operation in, 490
HEARNE, K. G.: Heat hyperpyrexia, 521
Heart affections in relation to the labour market (R. O. Moon), 628. (O)
Heart conditions, collective investigation on ten thousand recruits with doubtful (C. Chapman Gibbes, R. O. Moon, S. Russell Wells, P. Hamill, Frederick W. Price, and J. Strickland Goodall), 730. (O)
Heart disease, the passive mechanical factor in (Alexander Blackhall-Morison), 817. (O)
Heart, irritable (Carey Coombs), 404
Heart, soldier's (C. H. Cattle), 188
Heart, soldier's, and war neurosis (Sir James Mackenzie), 491, 530. (O)
Heat hyperpyrexia, nature, prevention and treatment of (W. H. Willcox), 392. (O)—Physiological aspect of (Leonard Hill), 397 (O)—Discussion on, 401—Correspondence on, 485, 521—(Captain John N. McIntosh), 795
Heat-stroke, hyperpyrexial, nature and treatment of, 343
Heath's Minor Surgery and Bandaging, rev., 226
HECKEL, Francis: *Grandes et Petites Obésités, Cure Radicale*, rev., 118
HEFFERNAN, Major P.: Duration of pulmonary tuberculosis, 206
HEHIR, Major-General P.: Commissions in the Indian Medical Service, 382—Treatment of malaria, 453
Helminths in cancer (leading article), 777
HEMBROUGH, John William, obituary notice of, 313
Hemeralopia, epidemic of, 480
Hemeralopia or nyctalopia, 514, 555
Hemeralopia in scurvy, 526
Hemiplegia, two cases of (Kenneth Rogers), 220
HENDERSON, G. G.: *Catalysis in Industrial Chemistry*, rev., 154
HENDRICK, Ellwood: *Chemistry in Everyday Life*, rev., 190
HENNESSY, Thomas: Report of the Irish Public Health Council, 870
HEPBURN, H. H.: Early manifestations of beri-beri, 466 (O)
HERBERT, Lieut.-Col. Arthur Stanley: *Military Physical Orthopaedics, Part I, Gunshot Wound of Nerve*, rev., 831
Hereford, medical reunion dinner, 198
Herman's Difficult Labour, rev., 606
HERNAMAN-JOHNSON, Francis: Use of *x* rays as immunity-raising agents before and after operation for cancer, 793. (O)
Hernia, review of books on, 15
Hernia, strangulated umbilical (C. M. Kennedy), 468. (O)
Herpes and varicella (Claude Wilson), 828
Herpes zoster and greyness of hair (G. Lenthal Cheatle), 219
HERPIN, A.: *Les fractures de guerre du maxillaire inférieur*, rev., 543
HERRINGHAM, Sir Wilmot: Gas poisoning, 221—International Organization of Medical Societies, 272
HERSCHELL, G.: *Textbook of Indigestion*, rev., 573
HERTZLER, Arthur E.: *The Peritoneum: Vol. I, Structure and Function in Relation to the Principles of Abdominal Surgery. Vol. II, Diseases and their Treatment*, rev., 15
HEWER, C. Langton: Anaesthesia in epileptics, 558
HEWER, Evelyn E.: Functional connexion between the reproductive organs and other glands of internal secretion, 293. (O)
HEWER, Mrs. J. Langton: *Our Baby: for Mothers and Nurses*, rev., 368
HEWETSON, W. M.: Mode of quinine administration, 756
HICKLING, Gertrude H.: Nasal drill in treatment of adenoids, 147. (O)
HICKS, George Adam, obituary notice of, 172
HIGGS, T. F., presentation to, 489
Highlands and Islands Medical Service, 848
HILL, A. W., elected Fellow Royal Society, 344
HILL, Leonard: Physiological aspect of heat-stroke, 397. (O)—Ventilation and heating of tuberculosis institutions, 797
HILTON, O.: Antistreptococcic serum in puerperal fever, 185
HIRST, Barton Cooke: *An Atlas of Operative Gynaecology*, rev., 15
Historical surgical instrument cases, 54
History, Annals of Medical, 226
History of the war, medical and surgical: Surgeon-General of the United States Army asks for a grant towards the publication of, 623
HODDER, A. E.: Sclerema neonatorum associated with placenta praevia, 634
HOFFMANN, F. L.: *Is Leprosy Increasing?* 855
HOLDEN, Oscar M.: The general practitioner and the health services, 784
Holland, rabies in, 525
HOLLAND, C. Thurstan: War lessons for radiology, 353. (O)
HOLLAND, Eardley: Rupture of Caesarean section scar, 705—Fetal intracranial haemorrhage during birth, 858
HOLLIS, H. S.: Treatment of ante-partum haemorrhage, 753
HOLMAN, C. C.: Ectopia vesicae treated by implantation of the ureters in the rectum, 149. (O)
HOLMES, T. S. S. (and Andrew FULLERTON): Ruptured gastric ulcer in an old man, laparotomy, recovery, 218 (O)
Holt case, 523
HOLTH, S.: Bronze medico-chirurgical instruments, 268—The Roman netting needle for winding a surgical thread, 458
Home Office, order *re* tar cancer and chrome ulceration 122
Homes of Recovery (parliamentary question), 650

HONOURS (January to June, 1920), 26, 27, 35, 99, 103, 124, 136, 172, 203, 240, 269, 275, 276, 304, 312, 313, 352, 385, 422, 457, 508, 545, 555, 557, 589, 660, 689, 725, 755, 771, 785, 805, 814, 854, 884
Peerage, 26
K.C.B., 26
C.B., 35
Order of St. Michael and St. George: C.M.G., 26, 240
Order of the British Empire: G.B.E., 509
K.B.E., 203, 304 422, 508
C.B.E., 35, 136, 203, 240, 313, 508, 854
O.B.E., 35 203, 240, 275, 508, 660, 771, 884
M.B.E., 35, 203, 545, 589
Knighthoods, 26, 27
Distinguished Service Order (and bars), 240
Military Cross (and bars), 136, 172, 203, 240
Order of St. John of Jerusalem, 124, 557, 589
Birthday honours, 805
New Year honours, 26
Kaisar-i-Hind medal, 26
Territorial decoration, 137 172, 457, 689
Foreign decorations, 35, 103, 136, 172, 276, 313, 385, 457, 546, 689 725, 755, 785, 814, 855
Mentioned for services, 172, 203, 240, 275, 313, 884
American surgeons mentioned in dispatches, 725
Mentioned in dispatches, 99, 385, 525, 755, 854
Surgical war honours, 238, 352
War honours, 312, 352, 557, 586

Hookworm disease, review of books on, 542
HORDER, Sir Thomas: Influenza and epidemiology, 235—Nerve symptoms in acute infections, 404
HORNABROOK, R. W.: Safety of ethyl chloride, 485
HORROCKS, Sir William Heaton: Hon. Fellowship of Society of Medical Officers of Health conferred upon, 305
Horse-shoe kidney. *See* Kidney
HORSLEY, Lady: Proposal for a memorial to Sir Victor Horsley, 418
HORSLEY, Sir Victor, Life of, rev., 260—Proposed memorial to, 271, 350, 418, 785
Hospital, No. 14 General: Work of, 195—Dinner, 195
Hospital, American, in London, progress of, 650, 779
Hospital, Craigleith Military, closure of, 270
Hospital, Edinburgh Royal Maternity, and Simpson Memorial, 809
Hospital, Endell Street, surgery at (Dr. Garrett Anderson), 605
Hospital, Erskine, for limbless service men (Glasgow), 197
Hospital, Freemasons' paying, 415
Hospital, Glasgow Royal Cancer, annual meeting, 483
Hospital, Graymount, Belfast, Sir H. Gauvain's report, 655, 688
Hospital, Guy's, new superintendent appointed, 241
Hospital, Johns Hopkins, first superintendent of, 232
Hospital for limbless men, the Erskine (Glasgow), 197
Hospital, the London, in-patients to pay 10s. a week, 351
Hospital, Maudsley Mental, lectures in medical psychology at, 376
Hospital, Middlesex: Joel chair of physics, 194, 315—Chair of pathology, 315—Special meeting *re* amalgamation of Cancer Research Department and Bland-Sutton Institute of Pathology, 580
Hospital and Nursing Services (Scotland), 848, 880
Hospital for paying patients, 263. *See also* Hospital, St. Chad's
Hospital, provision in the future (parliamentary question), 377. *See also* Hospitals, voluntary
Hospital, Queen Charlotte's Maternity, London, report, 518
Hospital, Royal Free, reunion dinner of past and present students (women), 415
Hospital, Royal Prince Alfred, note on, 271
Hospital, St. Bartholomew's, clinical teaching "element" at work, 228
Hospital, St Chad's, Birmingham, for paying patients (William Billington), 263

Hospital, St. Luke's, Bradford (parliamentary question), 551
Hospital, St Mary's, and clinical education at the Poor Law Infirmary, 92, 242
Hospital, St. Thomas's: University unit at, 26—Old students' dinner, 123
Hospital, Sir Patrick Dun's, memorial brass and bed, 589
Hospital survey, 684. *See also* Hospitals, voluntary
Hospital, Swansea General and Eye, opening of a pathological department, 722
Hospital system, remoulding the (leading article), 160. *See also* Hospitals, voluntary
Hospital, Tribondeau, 458
Hospital, University College: University unit, 26, 161—Rockefeller Foundation gifts to, 799, 834, 838
Hospitals, army mental, treatment in (parliamentary question), 306
Hospitals, bequests to. *See* Bequests
Hospitals and clinics at Cardiff, 307
Hospitals, co-operation between, 418
Hospitals in India (parliamentary question), 306
Hospitals, in-patients at: Organization of in-patient treatment (leading article) 372—To pay 10s. a week at the London Hospital, 351. *See also* Hospitals, voluntary
Hospitals, London Mental, increase of remuneration of medical superintendents of, 264
Hospitals, maternity. *See* Maternity
Hospitals, mental, assistant medical officers at, 686. *See also* Asylum
Hospitals for mental cases (parliamentary question), 649 *See also* Mental
Hospitals, military, board appointed to advise on chronic cases in, 277
Hospitals, municipal general (parliamentary question), 583—Government policy as to, 612
Hospitals, Public and Secondary Schools Red Cross, hand over balance of their funds to the Village Centres Council, 35
Hospitals, voluntary: Future of, 156, 160, 351, 372, 377, 379, 451, 647, 685, 691, 710, 713 751, 752, 783, 844, 879—Scheme for Red Cross assistance, 156—Discussion at Birmingham, 157—Proposed public inquiry into the medical service of the community, 157—Leading article, 160, 713—In-patients at, 351, 372—Parliamentary questions, 377, 647, 685, 751, 844, 879—The question of in Kent, 379—Statement of King Edward's Hospital Fund, 451—Government policy as to, 647—Financial position of, 685, 751, 879—Sir Arthur Stanley on, 691—Survey (Sir E. Napier Burnett's report), 684, 710, 713—Payment of visiting staffs, conference at Leicester, 752—Statement by Dr. Addison 783
Hôtel-Dieu, Paris: Advanced lectures on diseases of the gastro-intestinal canal, 796
Hour glass stomach, gastric and pyloric ulcers (Donald M. MacLeod), 115
Hours of labour 446
House of Commons, ventilation of, 650
House demolition, Ministry of Health's rules of procedure for, 623
House flies. *See* Flies
Housing, lead for, amended regulations from Ministry of Health, 277
Housing, in Scotland (Sir George McCrae), 95—Volume on *Type Plans*, etc., issued by Ministry of Health, 885
HOWARD, A. H. H.: Heat hyperpyrexia, 485
HOWARD, H. H.: *The Control of the Hookworm Disease by the Intensive Method*, rev., 542
HUGHES, Basil: Papilliferous carcinoma of the thyroid gland, 362. (O)—Letter on, 586
HUGHES, Edmund: Experimental induction of cancer 722
Human metabolism. *See* Metabolism
HUMPHRY, Laurence, obituary notice of, 239
HUNT, G. H.: Oxygen therapy, 151
HUNT, Lieut.-Colonel John Percival, obituary notice of, 524
HUNT, Joseph William, obituary notice of, 658
HUNTER, Duncan Francis, obituary notice of, 524
HUNTER, J. F. D.: Path of the eclamptic toxin, 469
Hunterian chancre, phagedaena of, following treatment with novarsenobenzol (H. M. Hanschell), 498 (O)
HUNTLEY, E.: Three cases of acute perforation of duodenal ulcer, laparotomy, recovery, 362. (O)
HURD, H. M., and Johns Hopkins Hospital, 232
HURST, Arthur F.: Forgetting, psychological repression, 170—New views on the pathology, diagnosis, and treatment of gastric and duodenal ulcer, 559. (O)—Duodenal ulcer and the hypertonic stomach, 688
Hydatid mole (Dr. Fothergill), 224—(Carlton Oldfield), 224
Hydrogen peroxide solution, supply limited, 103
Hydatidiform mole (F. J. Browne), 152
Hygiene Institute of Paris, 878
Hyperglycaemia in mental disorders, 193
Hypernephroma of ovary, 133—(Ernest E. Glynn), 572
Hyperpyrexia, heat *See* Heat
Hysterectomy for fibroids, results of (J. W. Bride), 14
Hysteria and instinct (Major V. T. Carruthers), 792. (O)

I.

Ileo-caecal valve, 553
Imitation of Christ, "Edith Cavell" edition, rev., 407
Immunity, non-specific (leading article), 228
Imperial War Museum. *See* Museum
Improving us off the earth, 104
IMRIE, C. G. (and others): Pyrexia of uncertain origin and enteric fever, 373
Income tax, 36, 71, 104, 138, 173, 242, 277, 316, 388, 409, 424, 441, 458, 479, 490, 526, 558, 624, 660, 692, 726, 756 786, 808, 816, 856, 879, 885—And pensions of retired naval officers (parliamentary question), 305—Of naval officers (parliamentary question), 345—Reconstruction of (leading article), 409—Editorial article, 441—And service gratuities, 479—Parliamentary questions, 305, 345, 808, 879—Method of dealing with renewals, 885

INDIA:
Army officers in (parliamentary question), 345
Cost of increased pay, 751
Indigenous medicine, 618
Influenza, 199 618
Kashmir Medical Mission, report, 881
Leper Hospital, Kashmir State, 881
Leprosy, 484, 618, 749
Maternity and infant welfare, 483, 618
Medical conditions of service in (parliamentary question), 720
Medical inspection by women, 849
Medical institutions of Jaipur, 198
Medical research, 199
Plague in the United Provinces (1918-19), 849
Proposed all-India research institute, 344
R.A.M.C. pay in 525
Recruiting for the Indian Medical Service, 849
Small-pox in Calcutta, 618
Yellow Fever Committee, 484

Indian medical practitioners in East Africa (parliamentary question), 482, 650
Indian Medical Service. *See* Army, Indian
Indigestion, review of books on, 573
Industrial lighting (Leon Gaster), 557
Industrial research: Board of Trade issues licence to Scottish Shale Oil Scientific and Industrial Research Association, 557
Industrial schools, defective children in (parliamentary question), 269
Infant feeding, accessory food factors in, discussion on, 378
Infant welfare centres, discussion at London Association of the Medical Women's Federation, 153. *See also* Maternity
Infants' and children's homes and hospitals, Ministry of Health circular, 880
Infants, illegitimate, death rate of (parliamentary question), 378
Infectious diseases at British ports (parliamentary question), 345
Infirmaries, Poor Law, and clinical education, 92—Decision of Paddington guardians, 92, 242
Infirmaries, Poor Law, future of (parliamentary question), 414
Infirmary, Edinburgh Royal, report, 234
Infirmary, Glasgow Royal, annual report, 270
Infirmary, Glasgow Western, 58
Infirmary, Leeds General, new year's gift for nurses' pension fund, 71
Infirmary, Leicester Royal, conference on payment of visiting staffs of voluntary hospitals, 752
Infirmary, Manchester Royal: Post-graduate courses, 126—Annual report, 233
Influenza: Note on, 163, 232, 342—Leading article, 191—In India, 199, 618—Made notifiable in Vienna, 589—In St. Kilda, 654
Influenza bacillus, association of with lethargy (W. M. Crofton) 431. (O)
Influenza, chameleon, 424
Influenza, control of (Reginald Pollard), 258
Influenza deaths: Registrar-General's weekly returns, 305—In England and Wales (February-March, 1920), 423—Parliamentary questions, 514
Influenza and epidemiology, 235
Influenza, experimental production of, 267
Influenza, inoculation against (W. H. Wynn), 254. (O)
Influenza, inoculation against (preventive), results of in the army at home, 1918-1919 (Major-General Sir William B. Leishman), 214. (O)—Correspondence on, 309
Influenza among the Lapps (A. H. Macklin), 465. (O)
Influenza, ocular conditions in, 72
Influenza prevention: Memorandum by Ministry of Health, 19, 23—Regulations for prevention of, 205, 305—Parliamentary questions, 305—Correspondence on, 886
Influenza, vaccinal prophylaxis of, 19, 23
Influenza vaccine, 271
INGLIS, Florence E.: Prevention of venereal disease, 311
INMAN, F. Wm.: Tuberculosis sanatoriums, 619
INNES, Deputy Surgeon-General Charles Alexander, obituary notice of, 524
In-patient treatment, 372. *See also* Hospitals, in-patients
Inquests in the City of London and Southwark, 451
Insanitary areas (parliamentary question), 844
Insanitary conditions at theatres. *See* Theatres
Insanity and crime (Holt case), 523
Insanity, prevention and treatment of (Sir James Crichton-Browne), 749
Insect, blood-sucking, the "froghopper" as (Lieut.-Col. C. Donovan), 220
Insomnia aggravated by noise, 424
Instinct and hysteria (Major V. T. Carruthers) 792 (O)
Institution, Liverpool Medical:—J. G. Adami: Historical sketch of the diphtheroid group, 14—Keith Monsarrat: Massive calculous deposit in the urinary channels, 14—E. E. Glynn: Spirochaetes in bronchiectasis, 14—Ovarian hypernephromas, 572—Annual meeting, 166—R. Stenhouse Williams: Bacteriology of milk, 365—F. C. Lewis: Standardization of blood cell suspension in complement fixation tests 637
Instrument cases, historical surgical, 54
Instruments, bronze medico-chirurgical, 268
Insular orthography, 174

INSURANCE, NATIONAL:
Administration, 345
Amending Bill, 345, 450, 717
Arbitration, 378
Expenses, 482
Finance, 306, 808
Highlands and Islands Medical Services, 848
Hospitals and nursing services (Scotland), 848, 880
Medical grants under, 269
Medical remuneration (leading article), 120
Panel practitioners and vaccination, 883
Parliamentary questions, 269, 306, 345, 378 450, 482, 615, 650, 686, 717, 808
Practices, 378
Tuberculosis treatment in London, 782

Insurance against sickness, Swedish commission appointed to report on, 557
Internal secretion, organs of (W. Blair Bell), 787. (O). *See also* Function, correlation of
Internal secretion, review of book on, 189
International good fellowship, 779. *See also* Fellowship of Medicine
International Society of Surgery. *See* Society
Intestinal obstruction. *See* Obstruction
Intestine, large, atony and prolapse of (J. W. Smith), 243. (O)
Intestinal obstruction, acute, due to pregnancy in a bicornuate uterus (C. E. S. Jackson), 185. (O)
Intraspinal pressure in acute disease, 311
Intravenous injections, physiological action of, 375
Intravenous protein therapy. *See* Protein
Intussusception of appendix (Archibald Young), 365
Invalid chairs (motor driven), taxation of (parliamentary question), 346
Invalids, opportunity for, 786

Ireland:
Belfast: Tuberculosis sanatorium, objections to proposed site, 617—Purchase of Craigavon refused, 783—Graymount Hospital, Sir H. Gauvain's report, 655, 688
Byers, Sir John, dinner to, 167
Coates, S. P., presentation to, 848
Doctors' threatened strike, 167
Dublin, postal arrangements in, 234
Influenza vaccine, 271
Irish General Nursing Council, 271
Irish Public Health Council, 197
Medical attendance on the Royal Irish Constabulary, 234
Medical fees for public work (Limerick), 655
National University of Ireland, roll of honour, 234
Royal Academy of Medicine, 519
Salaries of Poor Law medical officers, 234, 519
Sanatorium at Craigavon, Belfast, proposed 783
Spelman, the late Dr. A. P., 721
State medical service, the proposed, 197—Meeting in Belfast 197
Taylor, James, presentation to, 849
Ulster Medical Society, 197, 379, 618, 688, 783—Examination in ophthalmology, 198
Wexford county practitioners, meeting o, 783

Irish General Nursing Council, 271. *See also* Nursing
Irish motor deadlock, 132
Irish Public Health Council, 197, 870—Report (Thomas Hennessy), 870
IRVING, Captain G: Sublimed sulphur in mercurialism, 149
Ischaemic contracture of forearm (Archibald Young), 636
Italy, statistics of the deaths and wounded in the navy during the war, 313—Activities of Italian section of "Pneumothorax artificialis" to be resumed, 472—Statistics of war deaths in the sanitary service, 543

J.

JACKSON, C. E. S.: Acute intestinal obstruction due to pregnancy in a bicornuate uterus, 185. (O)
JACKSON, F. S.: Erysipelas, 278
JACKSON, Thomas, obituary notice of, 690
Jaipur, medical institutions of, 198
Jamaica as a holiday resort, 590
JAMES, Major Gwilym Gregory, obituary notice of, 690
JAMESON, Sir Leander Starr, his body removed to Africa, 779
JANET, Pierre: Psychology and mental pathology, 774, 805
JARDINE, Robert (and A. M. KENNEDY): Puerperal suppression of urine, 767
Java, plague in, 589, 771
Jejuno-colic fistula following gastro-jejunostomy (Charles Bolton and Wilfred Trotter), 757. (O)
Jejuno-ileum, volvulus of the whole (B. P. Sabawala), 221
Jenner Society, 842
JEX-BLAKE, A. J.: Bronchiectasis, 591. (O)
Joel chair of physics, 194
Johannesburg Medical Advisory Committee presents a report on the organization of the medical school, 153
Johns Hopkins Hospital, first superintendent of, 232
JOHNSON, Claude, obituary notice of, 853
JOHNSON, Reginald: Combined use of novarsenobillon and mercury intravenously, 436—Early diagnosis of syphilis, 620
JONA, J. Leon: Prevention of influenza, 886
JONES, D. W. Carmalt: Hypothesis as to the organic basis of functional nervous disease, 231
JONES, E. Gabriel: *Chemistry for Public Health Students*, rev., 543
JONES, E. H.: *The Road to Endor*, rev., 542
JONES, Sir Robert: Flail joints and their treatment, 175. (O)
JONES, W. Black; Analysis of 100 consecutive cases of cardiac disease, 145. (O)
JONES, Wood: Voluntary movements in nerve lesions, 684
Journal of Neurology and Psycho-pathology, rev., 870
JUDD, W. Rossell: Hay fever, 490
Jugs, good and bad, 490

K.

Kantara, camp conditions (parliamentary question), 879
Kashmir, State leper hospital, 881—Medical mission (report), 881
KAYSERLING proposes a tuberculosis law for Germany, 315
KEANE, A. H.: *Man, Past and Present*, rev., 330
KEATS, John, his house at Hampstead for sale, 526—Memorial fund, 614
KEEPER, Frank R.: *Textbook of Elementary Military Hygiene and Sanitation*, rev., 88
KEFGAN, Colonel Denis Francis, obituary notice of, 386
KEELING, G. S.: End of the war, 383
KEITH, Arthur: *Engines of the Human Body*, rev., 638
KEITH, Brigade Surgeon Lieut.-Colonel Joseph Forbes, obituary notice of, 556
KELLY, Surgeon Lieutenant Peter Burrowes, obituary notice of, 557, 724
KENEALY, Arabella: *Feminism and Sex Extinction*, rev., 676
KENNEDY, A. M. (and Robert JARDINE): Puerperal suppression of urine, 767
KENNEDY, C. M.: Strangulated umbilical hernia, 468 (O)—Lessons of the war in treatment of civil fractures of the skull, 630 (O)
Kent, hospital question in, 379
KEOGH, Sir Alfred: A warning, 624
KHOURI, Joseph: *Essai d'Urologie Pathologique des Pays Chauds*, rev., 639
KIDD, H. Cameron: Acute pulmonary oedema, 490
KIDD, Leonard J.: Treatment of psoriasis, 756
Kidney, horseshoe, two cases of (J. Mill Benton), 601
Kidney, metastatic staphylococcal infection of (Captain H. R. Souper), 288 (O)
Kidney, retrograde absorption by, 878
KING, Colonel W. G.: Awards for medical discovery, 519—Small-pox, its types and prevention, 778
KING, W. W.: Spindle-celled sarcoma, 224—Diagnosis of gonorrhoea in the female, 364
King's Fund *See* Fund
King's speech, 232
KINGZETT, C. T.: *Popular Chemical Dictionary*, rev., 226
KIRKPATRICK, T. Percy C.: *Henry Quin, M.D.*, rev., 407
KNAUER: Intracarotid salvarsan injections, 162
Knee joint, arthroplasty of, 768
Knee-joint effusion due to congenital syphilis (Walter W. Galbraith) 636
KNIGHT, E.: Sterility, 274
KNIGHT, Edith G. (and others): Production of clean milk, 876
KNOX, Robert: *Radiography in the Examination of the Liver, Gall Bladder, and Bile Ducts*, rev., 405
KOLL, Irvin S.: *Diseases of the Male Urethra*, rev., 406
KOOY: Hyperglycaemia in mental disorders, 193
KÖRBL: Manicure infection, 376
KYNASTON, Lieut.-Col. John: Treatment of adenoids, 238

L.

LABBÉ, Marcel, nominated Professor of Pathology and Therapeutics in Paris Faculty of Medicine, 315
Laboratories, local clinical, 59
Laboratory, Welsh mobile, 27
Labour, delayed, significance of the "contraction ring" in (C. D. Lochrane), 11. (O)—Correspondence on, 61
Labour, review of books on, 606
Labour, hours of, 446
Labour market, heart affections in relation to (R. O. Moon), 628. (O)
Labour Ministry, statistics on the cost of living, 443
Labyrinthine reactions of experienced aviators (David Ranken) 860. (O)
LADELL, R. G. M.: Forgetting, psychological repression, 169
LAIGNEL-LAVASTINE, M.: *The Internal Secretions and the Nervous System*, rev., 189
Lambs, dysentery in, isolation of an organism causing, 776
Lamp, a head, 472
LANCISI, Giovanni Maria, celebration of second centenary of, 305
LANE, Sir W. Arbuthnot: Prevention of venereal disease, 623
LANG, W. D. Handbook of British mosquitos, rev., 737
Lapps, influenza among (A. H. Macklin), 465. (O)
LARKIN, F. C., presentation to, 752
LARKING, A. E., presentation to, 95
LARYNX, malignant disease of (W. S. Syme), 365
LASSABLIÈRE, P.: *Le Lait Condensé*, rev., 88
LAUMONIER: Physiological action of intravenous injections, 375
LAURENS, Georges: *Oto-Rhino-Laryngology*, rev., 830
LAURIE, R. Douglas: Caesarean section for placenta praevia with concealed haemorrhage, 220
LAW, W. F: Treatment of malaria, 272
LAWRIE, W. Duncan: "Acute suffocative catarrh," 115
LAYTON, Frank G.: "Vagasthenia," 813
LEADER, Charles Robert, obituary notice of, 70

Leading Articles:
Abortifacients, sale and advertisement of, 192
Antianaphylaxis in treatment of chronic disorders, 839
Army Medical Service in the war, 840
Association of Surgeons of Great Britain and Ireland, 90
Budget, 577, 610
Birth rate, declining, 611
Cancer, experimental induction of, 680
Clinical research, 119
Consultative Council, report of, 746
Dangerous Drugs Bill, 714
Deficiency diseases in Vienna, 477
Diverticulitis, chronic, 119
Dogs' Protection Bill, 301
Eclampsia, nature of, 479
Encephalitis, epidemic, types and treatment of, 578
Endocrinology as an exact science, 644
Food supply of Germany, 301
Galton chair of National Eugenics, 803
Helminths in cancer, 777
Hospital survey, 713
Hospital system, remoulding the, 160
Immunity, non-specific, 228
Income tax, reconstruction of, 409
Influenza, 191
In-patient treatment, organization of, 372
Insurance medical remuneration, 120
League of Red Cross Societies. *See* Red Cross
Lethargic encephalitis, diagnosis of, 409
Lobar pneumonia, etiology of, 875
London's opportunity, 50
Malaria, treatment of, 875
Mechanism of symptoms, 547
Medical Research Council, 510
Medicine in the House of Lords, 21
Military service and medical graduation, 445
Miners' nystagmus, 227
Opium question and the peace treaty, 339
Organization of in-patient treatment, 372
Osler, William, 21
Parliamentary session, 22
Paternalism or *laissez faire?* 52
Penetrating wounds of the chest, 91

Leading Articles (*continued*):
Physical education, 338
Physique of British manhood, 339
"Pities of old surgeons," 265
Preventive medicine, teaching and research, 159
Psycho-neuroses, 408
Pyrexia of uncertain origin and enteric fever, 373
Radium therapy, 644
Red Cross Societies, League of, 547
Rockefeller Foundation gifts, 838
St. Andrews Institute for Clinical Research, 115
Salvarsan, composition of, 804
Security of tenure for health officers, 803
Small-pox, its types and prevention, 778
Skiagraphy of solid viscera, 511
Stomach, volvulus of, 548
Symptoms, mechanism of, 547
Toxic effects of arsenobenzol preparations, 51
Toxins and antitoxins, 266
Tuberculosis, epidemiology of, 444, 478
Tumours complicating pregnancy, 373
Venereal clinic, needs of the, 92
Venereal disease in the Portsmouth area, 680
Volvulus of the stomach, 548

League of Red Cross Societies. *See* Red Cross
LEATHART, Percival W.: Chronic infection of the faucial and post-nasal lymphoid tissue in children, 217. (O)
LEATHES, J. B.: Renal function in nephritis, 403
LECLERC, H.: Cress consumption causing dysuria, vesical spasm, etc., 637
Lecture, Lady Priestley Memorial: Public opinion and preventive medicine (Sir George Newman), 646
Lecture, Schorstein: Diagnosis of disease of the pancreas (Sir A. E. Garrod), 458 (O)
Lectures, Lettsomian: Tumours complicating pregnancy, labour, and the puerperium (Herbert R. Spencer), 179, 246, 320. (O)—Note on, 205—Leading article on, 373—Correspondence on, 416, 452
Lectures, Mackenzie Davidson Memorial, 581
Lectures, Maudsley: Prevention and treatment of insanity (Sir James Crichton-Browne), 749
L'Encéphale and *L'Informateur des aliénistes et des neurologistes* resume publication, 457
Legumes in beri-beri. *See* Beri-beri
Leicester: Public medical service, 415—Post-graduate course, 518—University college for, 715
LEISHMAN, Major-General Sir William B.: Results of protective inoculation against influenza in the army at home, 1918-1919, 214. (O)
LEITCH, Archibald: Treatment of uterine cancer, 416, 522, 585
LEITH, W. Compton: *Domus Doloris*, rev., 639
Lemon juice tablets, antiscorbutic, 624
Leprosy conference in India, 484, 618, 749
Leprosy statistics (F. L. Hoffman), 855
LESBRE, Dr., elected correspondent of the Académie de Médecine, 221
Lethargy, association of with the influenza bacillus (W. M. Crofton), 431. (O)
Letters of a Widowed Physician to his Daughter, rev., 331
Leucocytes, polymorphonuclear, origin of, 93
Leukaemia, acute, 231
LEWIN, Octavia: Nasal hygiene or nasal drill, 487
LEWIS, F. C.: Standardization of blood-cell suspension in complement fixation tests, 637—(and J. Martin BEATTIE) Sterilization of milk by electricity, 682
LEWIS, Thomas: *Mechanism and Graphic Registration of the Heart Beat*, 622
LEY, Gordon: Utero-placental apoplexy (accidental haemorrhage), 437
"Liberton," 810
Licences, establishment, 590
Liebig museum opened at Giessen, 557
Life, span of, 138
LIGNIÈRES, Dr., elected a corresponding member of the Académie de Médecine, 221
Liguria Medica, reappearance of, 725
LINDSOM, O.: Acute leukaemia, 231
Lip reading, 103
Liquor control, annual report of the Carlisle experiment, 653
Liquor prescriptions in Ontario, 725
Lister Institute, report of governing body, 709
Lister memorial institute in Edinburgh, proposed, 95
LISTER, T. D.: Address on the Assurance Medical Society, 366
LITTLEJOHN, Arthur Rieussett, obituary notice of, 69
LITTLE, Muirhead: Artificial appliance for amputation below the ankle, 590
Liver, acute yellow atrophy of (Major E. C. Whitehead), 400
Liverpool: Women students' dinner, 198—Health of, 379
Living, cost of, 443
LLOYD, G. W. (and Col. Ransom PACKARD) Early signs of scurvy, 329
LLOYD, I. H.: Case of facial trophoneurosis with deformity of hand, 735

Local Government Board. *See* Board
Local War Pensions Committees' Handbook, 587
LOCHRANE, C. D.: Significance of the position of a "contraction ring," 11. (O)
LOCKHART-MUMMERY, J. P.: Diverticulitis, 115—Operative treatment of ulcerative colitis, 487. (O)
LOCKYER, Cuthbert (and Thomas Watts EDEN): *Gynaecology for Students and Practitioners*, rev., 770
Loewi's adrenalin mydriasis as a sign of pancreatic insufficiency (W. L. Cockcroft), 669. (O)
LOGIE, James Scarth Spence, 100th birthday of, 691, 717

LONDON:
Association of Medical Women's Federation. *See* Association
Baths of old London, 807
County Council. *See* Council
Diphtheria and scarlet fever in, 27
District discharge centre, 518
District nursing in, 307, 348
Health services and hospitals in, 752
Inquests in, 451
Maternity and child welfare arrangements in, 687
Mental hospitals. *See* Hospitals
Post-graduate teaching in. *See* Post-graduate
Radium Institute report, 640, 644
School of Tropical Medicine. *See* Tropical
Small-pox in, 660
Small-pox in East London (parliamentary question), 378
University quarter for, 780
Venereal clinics in (parliamentary question), 414

LONDON, Bishop of (and others): Polish Red Cross Society of Great Britain, 884
London Insurance Committee's report on sanatorium benefit, 782
London's opportunity (leading article), 50
Longevity, weight, and height (Lewis P. Orr), 678
Loss of both legs (parliamentary question), 450
LOW, Barbara: *Psycho analysis*, rev., 640
LOW, George C.: Some unusual forms of dysentery, 255. (O)
LUCAS, A.: *Legal Chemistry and Scientific Criminal Investigation*, rev., 607
LUMB, Major N. P. L.: *The Urethroscope in the Diagnosis and Treatment of Urethritis: a Contribution to Urethroscopy*, rev., 48—A urethroscopic tube, 771
LUMSDEN, Thomas: Forgetting psychological repression, 131, 201
Lunacy Act, liability under (Everett *v.* Griffiths and Anklesaria), 522
Lunacy statistics (parliamentary question), 345
Lungs, acute oedema of (Stewart McNaughton, 293—(Herbert H. Brown), 435—(Cecil Musgrave), 468—(H. Cameron Kidd), 490—(Kenneth Anderson), 571—(William S. Scott), 571
Luxembourg, number of doctors, dentists, etc., in, 670
LUYS, Georges: *Textbook on Gonorrhoea and its Complications*, rev., 441—*Treatise on Cystoscopy and Urethroscopy*, rev., 541
Lymph, Government (parliamentary question), 378
Lymphocyte, biology of, 123
LYSTER, Cecil Rupert Chaworth, obituary notice of, 1.2

M.

MACALISTER, Alexander, estate of, 457
MACALISTER, Sir John, complimentary dinner to, 447—Presentation to, 885
MCBRIDE, P.: Adenoids, nasal catarrh, and influenza, 349
MACCABE, Lieut.-Col. Frederick F.: The span of life, 138
MCCARDIE, Mr. Justice: His remarks on professional secrecy, 102, 135
MCCARRISON, Lieut.-Col. Robert: Effects of deficient dietaries on monkeys, 249. (O)—Deficiency disease, with special reference to gastro-intestinal disorders, 822. (O)
MCCRAE Sir George: *Summary of the Report by the Committee on Housing in Scotland*, 95
MCCUBBIN, Thomas, obituary notice of, 313
MCCURRICH, H. J.: Case of malignant pustule in which the incubation period was known, 828
MACDONALD, D. M.: Treatment of profuse sweating in axillae, 242
MACDONALD, J. F., called to the bar, 659
MCFARLAND, Joseph (and John B. DEAVER): *The Breast, its Diseases and their Treatment*, rev., 675
MACGIBBON, T. A.: Treatment of the running ear, 294
Machinery of the Association *See* Association
MACILRAITH, W. M.: New lamps for old in obstetrics, 278
MACILWAINE, J. E.: Association of aortic endocarditis and aortitis, 428. (O)—Aortitis and aortic regurgitation, 656, 754
MCINTOSH, James, appointed to University chair of pathology at Middlesex Hospital Medical School, 315
MCINTOSH, Captain John N.: Heat hyperpyrexia, 795
MACKENNA, Robert William, appointed honorary dermatologist to Royal Infirmary, Liverpool, 173
MACKENZIE, J.: Medical literature for Vienna, 484—Future provision of medical services, 783
MACKENZIE, Sir James: Clinical research, 105. (O)—The soldier's heart and war neurosis, 491, 530. (O)
MACKENZIE, John W.: Ticks and relapsing fever, 200
MACKIE, Major F. P.: Treatment of relapsing fever, 380
MACKINNON, Grace: Idiosyncrasy to quinine, 258
Mackintosh. *See* Waterproofing
MACKINTOSH, Ashley W.: Appreciation of Sir W. Osler, 67
MACKLIN, A. H.: Influenza among the Lapps, 465. (O)
MACKWOOD, J. Charsley: Prevention of venereal disease, 130
MACLEAN, Inspector-General George, obituary notice of, 855
MACLEOD, Donald M: Hour-glass stomach, gastric and pyloric ulcers, 115—Obstruction due to adhesions of the pelvic colon, 867
MACMILLAN, Margaret: *The Nursery School*, rev., 367
MCNABB, Surgeon Rear-Admiral Sir Daniel J. P., appointed naval member of Medical Consultative Board to Admiralty, 884
MCNAUGHTON, Stewart: Acute oedema of lungs, 293
MACNEECE, Major-General James Gaussen, obituary notice of, 70
MCOSCAR, J.: Our opportunity, 520
MACPHAIL, James M.: *Eyes Right*, rev., 441
MCVAIL, John C: *Half a Century of Small-pox and Vaccination*, rev., 605
MCWALTER, J. C.: Prevention of venereal disease, 273—Syphilis insontium, 827. (O)
MADDEN, Frank Cole: *The Surgery of Egypt*, rev., 405
Madrid. *See* Spain
MAGIAN, A. C.: A disclaimer, 138—*Practitioner's Manual of Venereal Diseases*, rev., 331
Magic and medicine, 612
MAKINS, Sir George: Dinner to, 232, 684—Memorial to officers and men of the R.A.M.C. who fell in the war, 307—Becomes President of the Fellowship of Medicine, 377
Malaria, haematozoon of first verified in America by Osler, 525
Malaria in Scotland, 654
Malaria, subtertian, eusol in, 303
Malaria, treatment of, 199, 235, 272, 381, 453, 872—(W. S. Dawson), 600. (O)—Volume edited for War Office by Sir Ronald Ross, with reports by many officers, 872—Leading article on the volume, 875
Malaria treatment, Charles Dickens on, 756
Malaria in Uganda, routine treatment of (J. A. Taylor), 113. (O)
Malay States gold medal, 133
MALCOLM, E.: Sanatorium hospital for the well-to-do, 883
MALCOLM, John D.: Appendicitis without protective stiffening of the abdominal wall, 432. (O)
Male population, physical census of, report on, 331—Leading article on, 339
MALING, Edwin Allan, obituary notice of, 588
Malta, nurses in (parliamentary question), 551
Man, toxicological investigation of acute alcoholism in, 411
Man, white, in West Africa, 411
Manchester: Black smoke tax in, 721—Radium Institute report, 745—College of Technology publishes pamphlet on economic questions of the day, 815
Mandible, ankylosis of, and its operative treatment (Gilbert Chubb), 256. (O)
Mange, psoroptic. *See* Psoroptic
Manicure infection, 376
MANSON-BAHR, Philip: Commoner complications of bacillary dysentery in military practice, 791. (O)
MARSH, Lieut.-Col. O. E. Bulwer, appointed J.P. for county of Monmouth, 525
MARSHALL, C. F.: Early diagnosis of syphilis, 486, 688
MARSHALL, Claude H.: Salvarsanized serum in sleeping sickness, 702. (O)
MARSHALL, F. H. A., elected Fellow of the Royal Society, 344
MARTIN, C. J. (and P. HARTLEY): Diphtheria bacilli in the throat, 796
MARTIN, T. Muirhead: *Pocket Notes on Nerves*, rev., 118
MARVEL, Emery, obituary notice of, 240
Mary Louisa Prentice Montgomery lectureship in ophthalmology, 241
Mary Putnam Jacobi Fellowship, 173, 205
MASON, Captain W. F.: Rupture of membranes not followed by natural evacuation of the uterus, 258
"Mass reflex," 104
Massage, cardiac, in asphyxia neonatorum (E. Ward), 257
Massage establishments (parliamentary question), 650
Masseurs, blind, 232, 624
Masseuses, army (parliamentary question), 306
Maternity benefit for suckling mothers in France, 12
Maternity and child welfare centres in England and Wales, number of, 379—Booklet issued by Ministry of Health, 379—In London, 687
Maternity and infant welfare in India, 483, 618
Maternity homes and hospitals, memorandum by Ministry of Health, 299, 847—Parliamentary questions, 305. *See also* Infant welfare
MATTHEW, D.: Forgetting, psychological repression, 201
MATTHEWS, J. S.: Treatment of psoroptic mange, 856
Maudsley lectures. *See* Lectures
Mauritius, epidemic diseases in, 298, 383
MAVOR, O. H.: Mode of quinine administration, 28
MAW, Henry T.: Anthrax infection by brushes, 25, 53
MAY, Otto: Prevention of venereal disease, 99
MAYER, Leo: *Orthopaedic Treatment of Gunshot Injuries*, rev., 707
MAYLARD, A. Ernest: Partial pyloric obstruction, 626. (O)
MAYNARD, Lieut.-Colonel F. P.: Ophthalmic operations, 660
MAYO-ROBSON, Sir Arthur, elected honorary member of Royal Medical Society of Ghent, 241
MEAKINS, Jonathan C.: Therapeutic value of oxygen in pulmonary lesions, 324. (O)
MEARS, F. C.: New lamps for old in obstetrics, 128
Measles notification, a plea for, 278
Measles, public health administration in epidemics of (John Brownlee), 534. (O)
Mechanism of symptoms. *See* Symptoms
Mechano-therapy (Hedda Alstrom), 366
Medical ambassadors to the United States, 410
Medical Annual, 1920, rev., 738
Medical appeal boards for officers, 136
Medical appointments, whole-time, under the Worcestershire County Council, 654
Medical aspects of divorce laws. *See* Divorce
Medical assessors (parliamentary question), 583
Medical attendance on the Royal Irish Constabulary, 234
Medical barristers, 659
Medical bill (South Australia), 27
Medical boards, remuneration of (parliamentary question), 450. *See also* Pensions Ministry
Medical conditions of service in India (parliamentary question), 720
Medical Consultative Council. *See* Health Ministry
Medical Defence Union: Marks of appreciation, 35—The circumlocution office to day, 513—Special general meeting, 771
Medical Directory, accidental omission of a name from current issue, 242
Medical discovery, rewards for, 26—Correspondence on, 486, 519
Mental disease, incipient, treatment of, report of Medico-Psychological Association, 515
Medical education in America, mission from France and Great Britain to visit America to study system of, 525
Medical endowments in America, 342, 346. *See also* Scientific investigation
Medical examination for Government employment (parliamentary question), 583
Medical fees. *See* Fees
Medical grants under the Insurance Act (parliamentary question), 269. *See also* Insurance
Medical and surgical history of the war, Surgeon-General of United States Army asks for grant for the publication of, 623
Medical inspection of schools *See* School
Medical inspection by women (India), 849
Medical institutions of Jaipur, 198
Medical Insurance Agency, 842
Medical investigation, the aeroplane in. *See* Aeroplane
Medical journals of Scandinavia, 55
Medical literature for Vienna, 484, 516
Medical magistrates, 35, 525, 557, 589, 785, 885
Medical members of Parliament, 27
Medical men and motor tax. *See* Motors
Medical mission reports (South Travancore), 822—(Kashmir), 881
Medical missions (Russell Wells), 623
Medical Museums Association, American and Canadian Section, annual meeting, 786
Medical officers, advertisements for (Colchester), 809
Medical officers of health, security of tenure of (leading article), 803
Medical officers of local authorities, salaries of, 230
Medical officers in Mesopotamia (parliamentary question), 450
Medical profession, opportunity of. *See* "Our opportunity"
Medical professional privilege, 135. *See also* Professional secrecy
Medical psychology. *See* Psychology

Medical radiology, diploma in, 55
Medical Register, 514, 786, 841—Registrable foreign degrees, 786—Change of address, 841
Medical research in India, 199

MEDICAL RESEARCH COMMITTEE:
Report to on the toxic effects of arsenobenzol preparations (Surgeon Lieutenant Commanders R. J. G. Parnell and P. Fildes), 51
Report on penetrating wounds of the chest, 91
Report to on probable proportion of enteric infections among undiagnosed febrile cases invalided from the Western Front since October, 1916 (W. W. C Topley, S. G. Plates, and C. G. Imrie), 372
Report to on the epidemiology of phthisis (John Brownlee), 444, 478
Expenditure of (parliamentary question), 482

MEDICAL RESEARCH COUNCIL, 447, 504
Provisions of the charter, 504
Constitution of, 504
Powers, 504
Leading article on, 510
Arranges to maintain a national collection of type cultures, 682
Sterilization of milk by electricity (J. Martin Beattie and F. C. Lewis), 682

Medical schools of America 481
Medical schools, clinical units in, 775
Medical Science: Abstracts and Reviews, rev., 88, 262, 331 503
Medical service pay (parliamentary question), 720
Medical services, future provision of, report of Medical Consultative Council for England, 739—Report of Welsh Consultative Council, 781—Lord Dawson on the report, 800—In Wales, 809—Correspondence on, 783, 812, 850, 882—The primary centres, 783—Provision of private wards in health centres, 783—Position of general practitioners, 784—Medicine and the State, 882
Medical services. *See also* Health services
Medical sickness assurance, 94
Medical societies. *See* Societies
Medical students, number of, 102—In the United States, 481—Proposal that first-year students should study nursing and dietetics, 525—Demobilization of (parliamentary question), 720
Medical Students' Register, 581

MEDICAL AND SURGICAL APPLIANCES AND PREPARATIONS:
Amibiasine, 190
Anti-vermin paste, 472
Head lamp, 472
Nujol, 709
Petroleum jellies, 190
Sedimentary cell for microscopical examination of cerebro-spinal and other fluids, 708
Tonsil bayonet, 472
Urethroscopic tube, 771

Medical terms in the *New English Dictionary*, 683
Medical treatment for fee paying pupils in London County Council secondary schools, 387
Medical women's dinner, 4 5
Medicine in Bolshevist Russia, 54
Medicine and the Government, 52, 56
Medicine in the House of Lords (leading article), 21
Medicine, indigenous (India), 618
Medicine and medical appliances not to be sold by unlicensed persons at Athens (New York) without a permit, 725
Medicine, review of books on, 502
Medicine and the State (Lord Dawson), 743

Medico-Legal:
Abortionist sentenced (Devi Dayal Sasun), 589 754
Drugless healer sentenced (Arthur Barker), 314
Drunkenness in murder case: House of Lords delivers judgement in the Beard case, 383
"Herbal specialist" (Charles C. Abbott, 659
Insanity and crime, 523
Liability under the Lunacy Act, 522
Medical professional privilege, 102, 135
Panel practitioner's action for slander, 454
Professional secrecy, 102, 135
Unqualified treatment of venereal disease, 63, 384
Venereal "professor" sentenced (A. S. Eastburn), 384

Melancholia, senile, 104
MELLANBY, E.: Alcohol as a food, 295—Accessory food factors in infant feeding, 328
MELLOR, J. E. M.: Treatment of psoroptic mange (*Psoroptes communis*, var. *cuniculi*), 316
Membranes, rupture of, not followed by natural evacuation of the uterus (Captain W. F. Mason), 258
Memorial to men who fell in the war. *See* British
Meninges, permeability of to arsenic, 785
Meningitis treated by intrathecal injections of the patient's blood (Rupert Waterhouse), 45. (O)
Meningitis, tuberculous, case of, with complete recovery (Hugh Barber), 601 (O)
Mental cases, early care of in South Wales, 348
Mental cases, uncertifiable, sanatoriums for (parliamentary question), 414—Hospitals for (parliamentary question), 649
Mental deficients, institutions for, 126
Mental disease and spiritualism, 660
Mental disorders, hyperglycaemia in, 193
Mental disorders, physical basis of, 415, 452. *See also* Nervous disorders
Mental disorders, treatment of, 741, 851
Mental hospitals. *See* Hospitals
Mental treatment, early, and the rights of the subject, 689
Mentally defective, Birmingham scheme for (W. A. Potts), 472—Correspondence on, 554
Mentally defective, list of schools and institutions for, 809
Merchant seamen, proposed sanatorium for, 229
MERCIER, Charles, note on, 342
Mercurialism, sublimed sulphur in (Captain G. Irving), 149
Mercury and novarsenobillon, combined use of intravenously (Reginald Johnson), 436
Mesopotamia: Territorial and Special Reserve Officers R.A.M.C. in (parliamentary question), 345—Medical officers in (parliamentary question), 450—Sandfly fever in, 620
Metabolism, human, recent work on, 877
Mexican Board of Health quarantines all ships from Havana where there is an epidemic of meningitis, 755
MICHELIN brothers, note on, 458
Middle-ear. *See* Ear
MIDDLETON, A. G.: Forgetting, psychological repression, 274
MIDDLETON, James, presentation to, 103; obituary notice of, 884
MIDDLETON, W. J.: Value of counter-irritation, 856
Midwives (parliamentary question), 649
Midwives Board. *See* Board
MILES, W. Ernest: Diverticulitis, 115
Military medicine at the Imperial War Museum, 841
Military medical services in 1919, 134—Deaths, 134—Honours, 134—Recruiting for the R.A.M.C. and I.M.S., 134 *See also* Army, British
Military service civil liabilities claims, time extended (parliamentary question), 269
Military service and medical graduation (leading article), 445
Military service, compulsory, in Prussia, abolition of 289
Milk adulteration (parliamentary question), 583
Milk, bacteriology of (R. Stenhouse Williams), 365
Milk for children and mothers, 124
Milk, clean, production of, report on, 876
Milk, condensed, inter-departmental committee appointed to determine standard composition of, 423
Milk from Denmark (parliamentary question), 844
Milk, dried, and vitamines 580
Milk, sweetened condensed (parliamentary question) 482, 720, 751
Milk and dairies legislation (parliamentary question), 269, 686
Milk, pure and clean, 336
Milk sterilized by electricity, 682, 722
MILLARD, C. Killick: Vaccinal conditions of small-pox carriers, 851
MILLS, Lieut.-Col. B. L.: The Tagliacotian doctrine, 174
MILNE, Robert, presentation to, 205
MILNE, Thomas, obituary notice of, 488
Mineral water resorts, foreign, 545
Miners, eyesight of. *See* Eyesight
Miners' nystagmus. *See* Nystagmus
Mines, illumination in, discussion on, 327
MITCHELL, C. A.: Finger-prints on documents, persistence of, 387
MITCHELL, Chalmers, to accompany aërial expedition from Cairo to the Cape, 230
MITCHELL, Captain George Alan, obituary notice of, 71
Mitral stenosis in soldiers (A. G. Auld), 13
MOCK, Harry E.: *Industrial Medicine and Surgery*, rev., 502
MOFFAT, R. U.: Mode of quinine administration, 60
MOFFET, Lieut.-Colonel Grenville Edwin, obituary notice of, 70
Mole, hydatidiform (F. J. Browne), 152
Monaco, congresses in, 283
Monkeys, effects of deficient dietaries on (Lieut.-Col. Robert McCarrison), 249. (O)
Monotypical serum in cerebro-spinal fever (W. T. Munro), 430. (O)
MONSARRAT, K. W.: Some clinical types of abdominal tuberculosis, 5. (O)—Massive calculous deposit in the urinary channels, 14
MOON, R. O.: Heart affections in relation to the labour market, 628. (O)
MOOR, Captain C. G.: Antivermin paste, 472
MOORE, Helen, obituary notice of, 276
MOORE, Sir John W.: Appreciation of Sir W. Osler, 68
MORANT, Sir Robert, obituary notice of, 419, 455
MORCOM-HARNEIS, T. W., presentation to, 518
MORELLI, Enrico, death of, 589
MORISON, Rutherford: Diverticulitis, 85—Abdominal emergencies, 425. (O)
MORLEY, John: Duodenal ulcer and the hypertonic stomach, 655
Morphine acreage under cultivation (parliamentary question), 751
Morphine factories in Great Britain (parliamentary question), 720
Morphine, morphine salts and opium (parliamentary question), 345
MORRISON, G. E. (of Peking), obituary notice of, 781
MORRISON, Major J. T. (and Colonel Seymour BARLING), *Manual of War Surgery*, rev., 469
MORTON, John, obituary notice of, 523
Mosquitos, review of book on, 737
Mothercraft, rev., 368
MOTHERSOLE, R. D.: Apparent spontaneous rupture of a normal spleen, 63
Motor accessories, 526
Motor ambulance. *See* Ambulance
Motor car of a doctor, obstruction of, 783
Motor cars, rise in price of Austin cars, 557—Establishment licences, 590
Motor deadlock, the Irish 132
Motor notes for medical men (H. Massac Buist), 517, 543, 574—Taxation of cars, 555, 574, 648, 660 685, 808—Recommendations of Departmental Committee, 575 — Parliamentary questions, 808
Motors, water charges for car washing, 195, —Taxation of, 555, 574, 648, 660, 685, 686, 808, 844—Parliamentary question on taxation of, 685, 686, 808 844
MOTT, Clarence: Intratracheal chloroform, 13
MOTT, Sir Frederick W.: Early symptoms and diagnosis of diseases of the spinal cord, 857. (O)
MUIR, Robert: Appreciation of Alexander Ferguson, 621
MÜLLER: Origin of gastric pain, 162
MUMMERY, J. Howard: *The Microscopic Anatomy of the Teeth*, rev., 406
MUNRO, W. T.: Treatment of cerebro spinal fever by monotypical serum. 430 (O)
MURRAY, George R.: Appreciation of Sir W. Osler, 66—Life-history of the first case of myxoedema treated by thyroid extract, 359. (O)
MURRAY, Colonel Robert Davidson, obituary notice of, 204
MURRAY, W. A.: Treatment of malaria, 235
Muscular work, physiological cost of (A. D Waller), 537. (O)
Museum, Imperial War: Naval medicine at, 807—Military medicine at, 841
MUSGRAVE, Cecil: Acute oedema of lungs, 468
Muzzling Order (parliamentary question), 414
MYERS, J. E. (and J. B. FIRTH): *Elementary Practical Chemistry*, rev., 190
MYLES, Wilfrid Leech, obituary notice of, 239
Mydriasis, Loewi's adrenalin, as a sign of pancreatic insufficiency (W. L. Cockcroft), 669. (O)
Myoclonic form of epidemic encephalitis (Piero Boveri), 570. (O)—*See also* Encephalitis
Myxoedema treated by thyroid extract, life-history of the first case of (George R. Murray), 359. (O)

N.

Nails, ringworm of, simple treatment of (Robert Craik), 185
Naples, physiological study at the Zoological Station, 241, 268
Narcotic addiction, review of books on, 573
Nasal drill in treatment of adenoids (Gertrude H. Hickling), 147. (O). *See also* Adenoids
Nasal hygiene or nasal drill, 487
National Health Week, 557
National Service Medical Board (parliamentary question), 378
National Union of Manufacturers (Incorporated), Descriptive and Classified Directory of Members, rev., 49
Naval Medical Memorial Fund. *See* Fund
Naval medicine at the Imperial War Museum, 807
Naval officers, retired, pensions and income tax (parliamentary question), 305, 378
Navy, Royal, Medical Service of: Note on, 304—Promotions (parliamentary question), 345, 615—Income tax (parliamentary question), 345—Medical club dinner, 814—Retired surgeon commanders (parliamentary question), 378—Senior surgeon commanders R.N., 454—Surgeon rear-admirals, 615—Work of in the war, review of book on, 637—Sick berth ratings (parliamentary question), 650—Physical therapy in (Surgeon Commander A. K. Smith-Shand) ,683—Prize money not applicable to hospital ships (parliamentary question), 686—Establishments and services (parliamentary question), 719
Needle in alimentary canal (Heywood Smith), 81— W. M. Feldman), 206. *See also* Alimentary canal

Needle for artificial pneumothorax, a new (Frederic C. Coley), 432. (O)
Needle, Roman netting, for winding a surgical thread, 458
Neo-natal death rate in Edinburgh, 270
Neoplasms, *x*-ray treatment of (G. E. Vilvandré), 215. (O)
Nephritis, abdominal haemorrhage, death (James E. Blomfield), 400
Nephritis, blood transfusion in (Jeffrey Ramsay), 766 (O)
Nephritis, chronic, prognosis and treatment of (J. O. Symes), 494. (O)
Nephritis, renal function in (J. B Leathes), 403
Nephritis, review of book on, 606
Nerve lesions, voluntary movements in, 684
Nerve strain, discharged soldiers with (parliamentary question), 751
Nerve symptoms in acute infections (Sir Thomas Horder), 404
Nerves, cervical, vagus, and sympathetic, a correction, 138
Nerves, effects of radium treatment on war injuries in the neighbourhood of (Captain Walter C. Stevenson), 862. (O)
Nervous and borderland cases (Helen Boyle), 438
Nervous disorders, acidosis in (B. H. Shaw), 635 (O)
Nervous disease, functional, hypothesis as to the organic basis of, 231
Nervous disorders, functional, modern treatment of (Bernard Hart), 207. (O)—Correspondence on, 415, 452. *See also* Mental disorders
Nervous system and the endocrine glands (Sibyl I. Welsh), 769
NETTER: Lethargic encephalitis, 193
Neuralgia, chronic paroxysmal trigeminal, and its treatment (Wilfred Harris), 693. (O)
Neuralgia, trigeminal, treatment of, 173
Neurological Board, Lancaster Gate, 379
Neurological jottings (James Taylor) 282. (O) *See also* Shingles, Varicella, Epilepsy, and the Weather
Neurological treatment of pensioners (parliamentary question), 879
Neuroses, war, 36
Neurosis, war, and the soldier's heart (Sir James Mackenzie), 491, 530. (O)
New lamps for old in obstetrics. *See* Obstetrics
NEWMAN, Sir George: Appreciation of Sir Robert Morant, 419 — Lady Priestley Memorial Lecture: Public opinion and preventive medicine, 646
NEWSHOLME, Sir Arthur, to publish his American addresses, 623

NEW SOUTH WALES:
Alien enemy practitioners, 233
Red Cross fields of labour, extension of, 811
Reformative treatment of soldier prisoners, 811
Roll of honour, University of Sydney, 233
Royal Prince Alfred Hospital 271
Stuart, the late Sir T. A., 811
Tuberculous soldiers, 271

New York: Report of State Hospital Commission, 165—Women's Medical Association of New York City and Mary Putnam Jacobi fellowship, 173, 205—Carnegie Corporation gives money to National Academy of Sciences and the National Research Council, 249—Medical men contribute to Vienna food fund, 619—*Handicapped Worker* issued by the Institute for Crippled and Disabled Men, 829
NEWILL, A. G.: Plea for the notification of measles, 278
NICOLL, James H.: Chronic pancreatitis, 132—Dyspepsia, 380
NIERENSTEIN, M.: Excretion of quinine in the faeces, 278—Permeability of the meninges to arsenic, 785
Nigeria, Northern, service in (parliamentary question), 615
Night blindness. *See* Hemeralopia
NIGHTINGALE, Florence: Some manuscript notes by, 679—Centenary of the birth of, 691—Medal awarded, 786
NIJHOFF, M., issues catalogue of books concerning Netherlands India, 315
NIOSI: Volvulus of stomach, 548
NIXON, J. A.: Appreciation of Sir W. Osler, 66—Malignant endocarditis in a war pensioner, 435
Nobel Medical Prize for 1919 not to be awarded, 241
NOGUCHI: Etiology of yellow fever, 375
Noise in main thoroughfares (parliamentary question), 615
NORMAN, Geo.: Ventrifixation before the menopause, 571
Nose, separation of tip of, with complete primary union, 72

Notes, Letters, Answers, etc.
Abortifacients and preventives, 242
Abortion, attempted, sudden death at, 624
Adjusting the matter, 278
Advertising's artful aid, 556
Alopecia, 138, 173
Anaesthesia in epileptics, 526, 556, 624
Anaphylaxis, severe: recovery, 72
Antiscorbutic lemon juice tablets, 624

Notes, Letters, Answers, etc. (*contd.*):
Antispiritualistic vaccine, 726
Apothecary poet's house (Keats), 526
Asphyxia from inhalation of tobacco smoke, 692
Beri-beri, prevention of, 72
Blind masseurs, 624
Calcium lactate, value of, 726
Camphor oil, subcutaneous injections of, 388 424
Cervical vagus and sympathetic, 138
Chinese medicine, the founder of, 72
Coelum non animum, 278
Cold water and antipyretic drugs, 206
Copper alanin in inoperable cancer, 104, 174
Correction, 316
Counter-irritation, value of, 856
Cutaneous manifestations in a case of cervical fistula, 424
Dickens on the treatment of malaria, 756
Disclaimers, 138
Dupuytren's contraction, 242
Eggs dried, 856
Epilepsy, influence of atmospheric conditions on, 173
Erysipelas, 242, 277, 316, 352—A correction, 316
Establishment licences, 590
Evans's Analytical Notes, 786
Fetal movements, 71
Food and disease, 816
Foreign degrees, registrable, 786
Gestation, length of, 556
Good and bad jugs, 490
Granuloma of eyelid, 458
Grateful country, 316
Hay fever, 458 490
Health work, co-operation in, 490
Improving us off the earth, 104
Income tax, 36, 71, 104, 138, 173, 242, 277, 316, 388, 424, 458, 490, 526, 556, 624, 660, 692, 726, 756, 786, 816, 856, 885
Influenza: Ocular conditions in, 72—Chameleon, 424 Prevention of, 886
Insomnia aggravated by noise, 424
Insular orthography, 174
Invalids, opportunity for, 786
Jamaica as a holiday resort, 590
Legumes in beri beri, 816
Light wines and heavy prices, 590
Lip reading 103
Local rating, 277
"Mass reflex," 104
Measles notification, a plea for, 278
Medical Directory, clerical error in, 242
Michelin Brothers, 458
Miner's nystagmus, 138
Motor accessories, 526
Motor cars: Establishment licences, 590; proposed taxation of, 660
Needle in the alimentary canal, 206
Neuralgia, trigeminal, 173
New lamps for old in obstetrics, 278
Night blindness in scurvy, 526
Obesity, adolescent, 138
Ophthalmic operations, 660
Orthography, insular, 174
Paraesthesia, 277
Pericranial effusion of blood, 206
Petrol, price of, 352
Pin in the alimentary canal, 242, 424
Pneumonia infection, 816
Potatoes, sunburnt, 886
Pregnancy during amenorrhoea, 278
Professional secrecy, 174
Pruritus, treatment of, 104
Psoriasis, treatment of, 756
Psoroptic mange (*Psoroptes communis* var. *cuniculi*), treatment of, 316, 856
Pulmonary oedema, acute, 490, 726
Quadruplets, 556
Quinine administration, mode of 756
Quinine in the faeces, excretion of, 278
Rats and plague 816, 856
Reading by ear, 692
Record tramp, 692, 726
Roman netting needle for winding a surgical thread, 458
Sciatica, treatment of, 856
Senile melancholia, 104
Smith's visiting list, 36
Soft answer (story of Sir Samuel Wilks), 72
Span of life, 138
Speculum illuminator, simple, 174
Spiritualism and mental disease, 660
Surgical war honours, 352
Sweating, profuse, 206 242
Syphilis, sites of inoculation lesions in, 388
Tagliacotian doctrine, 72, 104, 174, 352
Tertium quid, 206
T.F. and S.R., 590, 624
Thyroid administration in hibernating dormice, 424
Trade teaching for feeble-minded youths, 556
Tuberculosis, pulmonary, duration of, 206
Unmusical swab 104
Venereal disease in the Portsmouth area, 726
Venereal disease prevention, 352
War honours, 352
War neuroses, 36
Warning, 316, 624
Wilks, Sir Samuel, story of (a soft answer), 72, 104

Notification fee. *See* Fee
Novarsenobenzol treatment followed by phagedaena of Hunterian chancre (H. M. Hanschell), 498. (O)
Novarsenobillon and mercury, combined use of intravenously (Reginald Johnson), 436
Nujol, 709
Nursery Schools, rev., 299
Nurses, alternative pensions for (parliamentary question), 879
Nurses, army (parliamentary question), 269
Nurses, disabled, treatment for, 385
Nurses in Malta (parliamentary question), 551
Nursing Council, General, appointment of, 616
Nursing Council for Scotland, 127, 584, 752—For Ireland, 271
Nursing, district, in London, annual meeting, 307, 348
Nursing organization in Wales, 233
Nursing service of the Ministry of Health (parliamentary question), 450
Nyctalopia or hemeralopia, 510 *See also* Hemeralopia
Nystagmus, miners', 138—Leading article on, 227—Double glaucoma developing after, 424—Parliamentary questions, 482—Review of books on, 572

O.

OBATA: Nature of eclampsia, 479
Obesity, adolescent, 138
Obstetrics and gynaecology, vaccines in (Robert Robertson), 437
Obstetrics "new lamps for old" in, 59, 97, 127, 170, 202, 278
Obstruction due to adhesions of pelvic colon (Donald M. MacLeod), 867
Ocular conditions in influenza, 72
Oedema, acute, as a result of a prick by a dogfish (H. Muir Evans), 287 (O)
Oedema, acute, of lungs (Stewart McNaughton), 293—(Herbert H. Brown), 435 Cecil Musgrave), 468—(H. Cameron Kidd), 490—Kenneth Anderson), 571—(William S. Scott), 571—(John Brown), 726—(D. W. Samways), 726
Oedema, severe angio-neurotic (Reginald Alderson), 828
Oenanthe crocata. *See* Dropwort, water
Officers, disabled, treatment for, 385
Officers, invalided (India), assistance for (parliamentary question), 650
OGSTON, Sir Alexander: *Reminiscences of Three Campaigns*, rev., 87
OHDEDAR, Mohendra Nath, obituary notice of, 853
Oil of camphor, subcutaneous injections of, 388 424, 828
Old age pensions. *See* Pensions
OLDFIELD, Carlton: Hydatid mole, 224
OLIVER, Colonel C. Pye, appointed J.P. for county of Kent, 557
OLIVER, George T.: Pregnancy during amenorrhoea, 278
O'MEARA, Lieut.-Col. E. J.: *Medical Guide for India and Book of Prescriptions*, rev., 471
O'MEARA, William Patrick, obituary notice of, 202
Ontario, liquor prescriptions in, 725
Operations on pensioners, 482
Ophthalmia neonatorum and illegitimate births (Grace H. Giffen Dundas), 436
Ophthalmic operations, review of book on, 606—Correspondence on, 660
Ophthalmological Congress, the annual, 582, 647, 671
Ophthalmological Congress, Oxford, 351
Ophthalmological teaching (J. B. Story), 671
Ophthalmology, examination in (Ireland), 198
Ophthalmology and the public, 647
Ophthalmology, teaching of, discussion in *Archives of Ophthalmology* by Vernoeff, Wiener, and Duane, 341
Opium acreage in India (parliamentary question), 751
Opium question and the peace treaty (leading article), 339
Optical instruments, 230
Oral osmosis and dental caries. *See* Dental
Order of St. John *See* St John
ORR, Lewis P.: Weight, height, and longevity 678
Orthography, insular, 174
Orthopaedic cases in Birmingham, difficulty in dealing with (parliamentary question), 650
Orthopaedics, military (Major R. W. Sutherland and Captain J. M. Christie), 762. (O)—Review of books on, 831
Oriental sore in Mesopotamia (Adam Patrick), 365
OSBURNE, Cecil A. P.: Forgetting, psychological repression, 169
OSLER Sir William: Leading article on, 21—Obituary notice of, 30—Appreciations of, 64 Note on, 121—Memorial service, 205—Oxford memorial to, 304, 369 374, 423—Donation from the Prince of Wales, 423—Eulogium at meeting of Vienna Medical Society, 315—At the Bodleian, 411 Presentation volumes for 70th birthday of, 457 614—Biography of, 522—Tributes to the memory of, 525—Estate and bequests of, 685
Osteopaths to submit to State medical examination in South Carolina, 623
O'SULLIVAN, W. J.: A warning, 316
Our opportunity, 484, 520

Ovarian cyst. *See* Cyst
Ovarian insufficiency (Dr. Ashe), 48
Ovary, hypernephroma of, 133
OVEREND, Walker: *Radiography of the Chest*, rev., 798
Oxford memorial to Sir W. Osler. *See* Osler
Oxford University Press General Catalogue, 725
Oxygen in pulmonary lesions, therapeutic value of (Jonathan C. Meakins), 324. (O)
Oxygen therapy (J. Barcroft), 150–Discussion, 151

P.

Paddington Board of Guardians and clinical education at the infirmary, 92, 242
PAGET, Stephen: *Sir Victor Horsley: A Study of his Life and Work*, rev., 260
PAINE, Alexander, awarded Berrante prize, 457
PALMER, A. C.: Rupture of vagina, 602
Palsy, mixed functional and organic, 736
Pancreas, diagnosis of disease of (Sir Archibald E. Garrod), 459. (O)—Correspondence on, 553
Pancreatic insufficiency, Loewi's adrenalin mydriasis as a sign of (W. L. Cockcroft), 669 (O)
Pancreatitis, chronic, 62, 132, 238
Panel practitioner's action for slander (James Wylie), 454
Panel practitioners and vaccination, 883. *See also* Insurance
Pan-Hellenic Congress. *See* Congress
PANTIN, C. S.: Insular orthography, 174
Paper shortage in America, 659–Parliamentary questions, 686
Paraesthesia, 277
Paraffin wax for first-aid treatment of burns (J. R. Garrod), 539
Paralysis of left arm and leg (Dr. Spears), 736
Paralysis, right facial, due to mastoiditis and caries, treated by operation (Patel), 224
Paralysis, physiopathic, of the hand and its causation (R. G. Abercrombie), 764. (O)
Paris: Scheme for the improvement of the hospitals, 283—Salaries of professors of the Faculty of Medicine raised, 723—Institute of Hygiene in, 878. *See also* France
PARISOT, J.: Tuberculosis mortality in Germany and the Rhine provinces, 837
PARKER, Rushton: Rhinoplasty and cheiloplasty, 12. (O)—Gastric ulcer after gastro-jejunostomy, 47

Parliament, Medical Notes in:
Air raid claims, 808
Anaesthetics, administration of, 583
Antityphoid inoculation, 482
Army estimates, 269
Army masseuses, 306
Army Medical Services, 449
Army mental hospitals, treatment in, 306
Army nurses, 269
Army officers in India, 345
Army, R.A.M.C. officers due for foreign service, 720
Artificial limbs, provision of, 583
Asylums as military hospitals, 551
Austrian destitute orphans, hospitality for, 346
Bread, 615
British prisoners still unaccounted for, 650
British soldiers in France and Germany, 720
Budget, 582, 686—Direct taxation, 686
Blind persons for Advisory Blind Committees, 650
Blind Persons Bill, 751
Blind, pensions for, 615
Blind soldiers, 615
Blind, training of, 345, 413
Blind Welfare Committee, 879
Bovine tuberculosis, 414
Census, 305, 879
Central Research Institute, Hampstead, 751
Child labour restrictions, 414
Clothing for tuberculous patients, 482
Coal on a medical certificate, 720
Corporation tax, 650
Cost of living, 844
Criminal Law Amendment Bills, 414, 482, 879
Dairy inspection, 378
Dangerous Drugs Bill, 720, 843
Death rate of illegitimate infants, 378
Defective children in industrial schools, 269
Demobilization of medical students, 720
Dental legislation, proposed, 305
Dentists Act, revision of, 615
Dentists Bill, 686, 844
Direct representative, election to fill vacancy, 685, 719
Disabled ex-service men in training, 650
Disability partly due to military service, 345
Disability pensioners' rights, 482
Doctors and motor car taxation 685
Dogs' Protection Bill, 269, 305, 448
Drugs, dangerous, 650
Drunkenness statistics, 346
Dwellings, unoccupied, utilization of, 844
Eaton Hall Hospital for convalescent soldiers, 686
Employment of women after childbirth, 879

Parliament, Medical Notes in (*contd.*):
Estimates, 413
Experiments on animals, 305
Fibroid phthisis, 482
Food Ministry, 686
General Medical Council Bill, 843
Government lymph, 378
Half-fare vouchers for men under treatment, 650
Health of the people, 583
Health Services Bill 751
Homes of recovery, 650
Hospital provision in the future, 377
Hospitals in India, 306
Hospitals of London, financial position of, 685, 751, 844, 808
Hospitals for mental cases, 649
Income tax, 808, 879
India: Army officers in, 345—Pensions for widows, children, and dependants of deceased officers, 650—Assistance for invalided officers, 650—Medical conditions of service in, 720—Indian services, increase of pay, 751
Indian medical practitioners in East Africa, 482, 650
Infectious disease at British ports, 345
Influenza, precautions against, 305–Deaths, 514
Insanitary areas, 844
INSURANCE ACT:
Administration, 345
Amending Bill, 345, 450, 615, 686
Arbitration, 378
Expenses, 482
Finance, 306, 808
Medical grants under, 269
Practices, 378
Right of appeal, 717
Sanatorium treatment, 650
Tuberculosis sanatoriums, 719
Kantara Camp, conditions at, 879
King's Fund, administration of, 345
King's Speech, 232
London hospitals. *See* Hospitals
"Loss of both legs," 450
Lunacy statistics, 345
Massage establishments, 650
Maternity homes, 305
Medical assessors, 583
Medical Boards, remuneration, 450
Medical conditions of service in India, 720
Medical degrees in East Africa Protectorate, 650
Medical examination for Government employment, 593
Medical fees under the Workmen's Compensation Act, 879
Medical men and the motor car tax, 648
Medical officers in Mesopotamia, 450
Medical practitioners and motor cars. *See* Motor
Medical Research Committee, expenditure of 482
Medical service pay, 720
Medical students, demobilization of, 720
Medicine and mining administration, 843
Midwives, 649
Military service civil liabilities claims, time extended, 269
Milk adulteration, 583
Milk and Dairies Bill 686
Milk and dairies legislation, 269
Milk from Denmark, 844
Milk, sweetened condensed, 482, 720, 751
Mineral waters, taxation of, 615
Miners' nystagmus, 482
Ministry of Health: Expenditure, 306, 649—Work of, 378—Nursing services, 450—Number of persons employed, 720—Medical staff of, 808—Administrative posts over £500 a year, 808—And utilization of unoccupied dwellings, 844
Minister of Pensions, new, 514
Morphine, manufacture of in England, 720
Morphine, morphine salts, and opium, 345
Morphine and opium, 751
Motor car taxation or petrol tax, 686; and medical practitioners, 808 844
Municipal general hospitals, 583
National Service Medical Board, 378
Naval medical establishments and services, 719
Naval Medical Service promotions, 345
Naval officers' income tax, 345
Naval officers, retired, pensions and income tax, 305—Surgeon commanders, 378—Surgeon rear-admirals, 615
Naval prize money, 686
Navy, sick-berth ratings, 650
Nerve strain (discharged soldier's pension), 751
Neurological treatment of pensioners, 879
New session 196
Nigeria, Northern, service in, 615
Noise in main thoroughfares 615
Nurses, alternative pensions for, 879
Nurses in Malta, 651
Officers' pensions. *See* Pensions
Old age pensions, 844
Opium and morphine, 751
Orthopaedic cases in Birmingham, difficulty in dealing with, 650
Paper supplies, 686
Parliamentary session, 750
Pensioners refused grants by Civil Liabilities Commissioners, 686
Pensioners, treatment allowances to, 583

Parliament, Medical Notes in (*contd.*):
Pensions and pensioners, 808
PENSIONS:
Administration, 269
Discharged soldier with nerve strain, 751
Medical boards, remuneration, 450
Medical officers' recommendation, 306, 378
Medical referees, 269
Medical staff of, 583
New Minister, 514
Number of pensioners, 808; of officers' widows, 615; of officers on continued service, 345
Permanent rate, 450
Pre-war, and the cost of living, 414, 686
Regional directors for the Ministry, 269
Retired regular naval and military officers employed by, 650
Revised, 377
Select Committee, the new, 686
Treatment allowances to pensioners, 583
War Pensions Bill, 685
Poor Law children in receipt of relief, 650
Poor Law infirmaries, future of, 414
Professional training of ex-service men, 306
Quinine, cost of, 306
Quinine stores, sale of, 686
Rabies in imported dogs, 808
Rabies, muzzling order, 414
Recruits, health conditions of, 720
Registrar-General's Department, 305
Retired surgeon commanders. *See* Naval officers
St. Luke's Hospital, Bradford, 551
Sanatorium treatment, 482—After-care of persons who have received sanatorium treatment 650
Sanatoriums for uncertifiable mental cases, 414
Service women's compensation, 306
"Shell shock," departmental inquiry on, 648
Small-pox, 450—In Germany, 346—In East London, 378–In Poplar, 414—At Bolton, 650
Small pox carriers, vaccinal condition of, 751
Soldiers in hospital, number of, 808
Stamp duties on patent medicines, 482
State grants to universities, 879
Surgeons. *See* Naval officers
Syphilis, treatment of, 346
Tax: Corporation, 650—"All trading profit," 650
Taxation of invalid chairs (motor driven), 346
Territorial army, new instructions, 879
Territorial and Special Reserve officers R.A.M.C. in Mesopotamia, 345
Theatres, insanitary conditions at, 346
Travelling facilities for men under treatment, 615, 720
Treatment allowances to ex-service men, 615, 720
Tuberculosis, institution accommodation for, 450
Tuberculous ex-service men, 450
Tuberculous soldiers, treatment of, 720
Typhoid fever, diagnosis of, 449
Typhus in Poland and Russia, 751
Typhus, threatened Western extension of, 879
Universities, State grants to, 879
University of London, proposed new site, 808
Vaccination: Statistics, 306—Public, cost of, 615—Value of, 720
Venereal disease in the British army, 751
Venereal disease treatment boards, 414
Ventilation of the House of Commons, 650—
Veterinary Surgeons Act Amendment Bill, 414, 844
War Pensions Bill, 685
Welsh Board of Health, 345
Whisky, imported, 650
Women and Children Employment Bill, 844

Parliamentary session (leading article), 22
PARNELL, Surgeon Lieutenant Commander R. J. G.: Toxic effects of arseno benzol preparations, 51
PARSONS, William M., 94th birthday of, 785
Paste, antivermin, 472
PATEL, M.: Right facial paralysis due to mastoiditis and caries treated by operation, 224
Patent medicine labels, revenue from, 589
Patent medicines, stamp duties on (parliamentary questions), 482
"Patent remedies" statistics, 49
Paternalism or Laisser Faire? (leading article), 52. *See also* Public health versus the State
PATERSON, A. Melville: *Anatomy of the Peripheral Nerves*, rev., 88
PATERSON, Surgeon-Major-General Henry Foljambe, obituary notice of, 724
PATERSON, William: General practitioner and the Health Services Bill, 753
Pathology, review of books on, 15
PATON, Noël: *Essentials of Human Physiology*, rev., 799
PATON, Stewart: *Education in War and Peace*, rev., 630
PATRICK, Adam: Multiple Oriental sore, 365
PATRICK, John: Syme the discoverer of waterproofing 521
Peace treaty and opium question, 339. *See also* Opium

nalysis. 736
m asseurs, 624
ealth versus the

fa ctor in relief vision,

PEDERSEN, V. C.: *Textbook of Urology in Men Women, and Children, including Urinary, and Sexual Infections, Urethroscopy, and Cystoscopy*, rev., 225
Pellagra in a refugee camp (near Port Said), 805
Pennsylvania: Tenth Annual Report of the Commissioner of Health for the Commonwealth of, rev., 831
Pensioners, operations on, 482—Treatment allowances, 583—Neurological treatment of (parliamentary question), 879
Pensioners' records 304
Pensioners' disability rights (parliamentary question), 482
Pensioners refused grants by the Civil Liabilities Commissioners (parliamentary question), 686
Pensions Bill, 685
Pensions, Greenwich Hospital, 203
Pensions handbook, 587

PENSIONS MINISTRY:
Administration, 269
Artificial limbs, provisional, 423
Blind men and pensions, 615
Disabled officers and nurses, treatment for, 385
Discharged soldier in institution for nerve strain, 751
Homes of recovery, 650
Local War Pensions Committees Handbook, 587
Medical appeal boards for officers, 136
Medical boards, remuneration of, 450
Medical officers' salaries, 378
Medical referees, 269
Medical staff of, 583
New Minister of, 514
New Select Committee on, 686
Number of pensioners, 808
Number of retired regular naval and military medical officers employed, 650
Officers' widows, 615
Parliamentary questions, 269, 306, 345, 378, 414, 450, 583, 615 650 685, 751, 808
Pensioners' records, 304
Permanent rate, 450
Regional directors for, 269
Remuneration of officers, 306
Treatment allowances, 583, 615
War neuroses, 36

Pensions of officers on continued service (parliamentary question), 345
Pensions, old age, 844
Pensions, pre war, and the cost of living (parliamentary question), 414, 686
Pensions referee, work of a, 132
Pensions, revised service (parliamentary question), 377
Pensions of Senior Surgeon Commanders R.N., 269
Pensions, war, the bill, 685
Pensions of widows, children, and dependants of deceased officers of the Indian army (parliamentary question), 650
People, health of (parliamentary question), 583
Peptone treatment of asthma (A. G. Auld), 567. (O)
Pepys of Medicine (Sir D'Arcy Power), 674
PEREZ, George V., obituary notice of, 456
Peritonitis, septic, treatment of (F. J. Steward), 527. (O)—Correspondence on, 656
Peritonitis, treatment of (Crile), 376
PETERS, R. H.: Oxygen therapy, 152
PETERSON, Frederick (and Archibald CHURCH): *Nervous and Mental Diseases*, rev., 471
Petrol prices, inquiry into, 241, 276, 352—Board of Trade report, 352
Petroleum jellies, 190
PEYRON, Albert, awarded Berraute prize, 457
Phagedaena of Hunterian chancre following treatment with novarsenobenzol (H. M. Hanschell), 498. (O)
Pharmacopoeia French, additions to, 613
PHILIP, Sir R. W.: Tuberculosis as affected by the war, 585—Treatment of tuberculosis, 704
PHILLIPS, E. W. M. Hubert: Myoclonic type of epidemic encephalitis, 634
PHILLIPS, Miles H.: Adenomyoma of recto-vaginal septum, 224—Large cervical fibroid causing severe haemorrhage, 224—Unilateral pelvo-abdominal pain due to constriction of ureter, 540
Physical education (leading article), 338
Physical therapy in the navy (Surgeon Commander A. K. Smith-Shand), 683
Physical Training, Syllabus of, 77
Physically defective. *See* Mentally defective
Physicians and surgeons, proposed world congress of, 241
Physiological cost of muscular work (A. D. Waller), 537. (O)
Physiological study at the Naples Zoological Station, 268
Physiology, review of books on, 540, 572, 676, 799
Physique of British manhood (leading article), 339. *See also* Census
PICKARD, Colonel Ransom (and G. W. LLOYD): Early signs of scurvy, 329
PICKIN, Frederick H.: Prevention of venereal disease, 352
PIÉRON: Puerilism of war, 194
PIKE, Major-General William: Heat hyperpyrexia, 521
" Pilgrim's Books," rev., 870
PILON, H.: *The Coolidge Tube: Its Scientific Applications, Medical, and Industrial*, rev., 770
Pin in alimentary canal (H. B. Pope), 242—(A. B. Roberts), 424
PINARD, M.: Quadruplets, 558
PINKERTON, James, obituary notice of, 313
PIRIE, Dr.: Atropine in pylorospasm and pyloric hypertrophy, 551
" Pities of old surgeons " (leading article), 265
PITT, G. Newton: Appreciation of Samuel West, 386
Pituitrin administration followed by spontaneous rupture of uterus (A. W. Bourne), 829
Placenta praevia with concealed haemorrhage, Caesarean section for (R. Douglas Laurie), 220
Placenta praevia associated with sclerema neonatorum (A. E. Hodder), 634
Plague: Case of on ss. *Alps Maru*. 315—In Java, 589, 771—In Egypt, 815—In the United Provinces during 1918-19, 849—At Czernovitz, 855
Plague and rats, 816, 856
Plant response, 412, 512, 716
PLARR, Victor G.: Some manuscript notes by Florence Nightingale, 679
PLASS, E. D.: Rare diseases, 374
PLATES, S. G. (and others): Pyrexia of uncertain origin and enteric fever, 373
Pleura, pneumonic haemorrhagic effusion into (Hubert C. Bristowe), 500
Pneumococcus in Denmark, investigations on the various kinds of, 557
Pneumonia, infection in, 816
Pneumonia, lobar, etiology of (leading article), 875
Pneumonic haemorrhagic effusion into pleura (Hubert C. Bristowe), 500
Pneumothorax, artificial, discussion on, 737
Pneumothorax, artificial, note on, with description of a new needle (Frederic C. Coley), 432. (O)—Correspondence on, 522
Pneumothorax Therapeutique to be revived, 472
Poison of the spiny dog-fish (H. Muir Evans), 287. (O)
Poisoning by arsenobenzol compounds used in the treatment of syphilis (Alexander G. R. Foulerton), 864. (O)
Poisoning by arseniuretted hydrogen gas (Thomas H. Wignall), 826. (O)
Poisoning by potassium bichromate, 691
Poisoning by potassium nitrate, 885
Poisoning by veronal in a hysterical person, 691
Poisoning by water dropwort, case of fatal (T. Harvey Thomson), 795
Poland, typhus fever in, 122, 614, 751
Polarized light in detection of suture material embedded in tissues (M. J. Stewart), 663. (O)
Polio encephalitis, acute, compulsory notification of, 71
Poliomyelitis, acute, the portal for, 343
POLLARD, Reginald: Control of influenza, 258
Polymorphonuclear leucocytes, origin of, 93
Polypus of stomach (J. Lionel Stretton), 80. (O)
Poole, Surgeon-major George Kenneth, obituary notice of, 71
Poor Law children in receipt of institutional relief (parliamentary question), 650
Poor Law infirmaries and clinical education, 92—Decision of Paddington Guardians, 92
Poor Law infirmaries, future of (parliamentary question), 414
Poor Law institutions order, revival of Article 4, 489
Poor Law medical officers' salaries (Ireland), 234, 519—Meeting at Clones, 519
POPE, H. B.: Pin in alimentary canal, 242
Poplar Borough Dispensary for Prevention of Consumption: Report, 44
PORTER, Annie: *Survey of the Intestinal Entozoa, both Protozoal and Helminthic, observed among Natives of Johannesburg from June to November, 1917*, rev., 675
PORTER, W. G.: *Diseases of the Throat, Nose, and Ear*, rev., 830
Portsmouth area, venereal disease in (leading article), 680—A correction, 726
" Post-graduate " word coined in America, 525. *See also* Premedical
Post-graduate courses: At Birmingham, 103, 659—At Manchester, 126—At the West London Post-graduate College, 126—In London, 26, 161, 194, 580, 855—In Edinburgh, 349—in Leicester, 518—In Bath (Spa treatment), 589—In Great Britain, 715—In Glasgow, 721
Post-graduate courses in surgical tuberculosis, 457
Post-graduate course in venereal disease, 55, 103, 315, 589, 623
Post-graduate study, aims and methods of (Sir Humphry Rolleston) 77. (O)
Post nasal lymphoid and faucial tissue in children, chronic infection of (Percival W. Leathart), 217. (O)
Potassium bichromate, poisoning by, 691
Potassium nitrate, poisoning by, 885
Potatoes, sunburnt, 886
POTTER, Nathaniel B (and James C. WILSON) *Internal Medicine, a Work for Practising Physicians in Diagnosis and Treatment*, rev., 676
POTTS, W. A.: The Birmingham scheme fo the menta lly defective, 472
POWELL, Arthur: Professional secrecy, 174
POWELL, H. E., appointed librarian to Royal Society of Medicine, 623
POWER, Sir D'Arcy: The Rev. John Ward and Medicine, 674
Pregnancy during amenorrhoea, 278
Pregnancy, colour in (J. W. Ballantyne and F. J. Browne), 438
Pregnancy complicated by fibroids, hysterectomy, recovery (R. de S. Stawell), 498. (O)
Pregnancy, suppression of urine in (Robert Jardine and A. M. Kennedy), 767
Pregnancy, toxaemias of (Aleck W. Bourne), 727. (O)
Pregnancy, tumours complicating (Herbert R. Spencer), 179, 246, 320. (O)—Leading article on, 373
Premedical used in America instead of Post-graduate, 525
Presentations, 95, 103, 198, 205, 241, 270, 379, 489, 518, 691, 725, 752, 847, 848, 885
Preventive medicine and public opinion, 646
Preventive medicine, teaching and research (leading article), 159
PRICE, Frederick W. (and others): Ten thousand recruits with doubtful heart conditions, 730. (O)
PRINGLE, Seton: Early symptoms of cancer of colon, 768
Prisoners of war, British (parliamentary question), 650
Professional secrecy, 102, 135, 174—Mr. Justice McCardie's remarks on, 102, 135
Professional training of ex-service men. *See* Ex-service
Profit tax, all trading (parliamentary question), 650
Protein shock therapy, 228
Protein therapy, intravenous (A. E. Gow), 284. (O)—Correspondence on, 380
Proteins, foreign, susceptibility to (John Freeman), 188
Pruritus, treatment of, 104
Prussia: Abolition of compulsory military service, 289—Appointment of a commission to investigate value of Friedmann's remedy for tuberculosis, 315—And Baden decide to create a doctorate in dentistry, 589
Psoriasis, treatment of, 756
Psoroptic mange (*Psoroptes communis*, var. *cuniculi*), treatment of, 316, 856
Psychiatry courses, 268
Psychiatry, review of books on, 297
Psychological analysis (T. H. Pear), 736
Psychological repression. *See* Forgetting
Psychology, medical, Maudsley courses in, 376
Psychology and mental pathology (Pierre Janet), 774, 805
Psychology, review of books on, 154, 470
Psycho-neuroses, elements of (Henry Head), 389. (O)—Leading article on, 408
Psychopathology and dissociation (William Brown), 139. (O)
Psychosis, hallucinatory (R. Hunter Steen), 363
Public health in 1918-19, 164
Public Health Congress, Dutch, 438
Public health, federal control of (Australia), 881
Public health versus the State (Bertram G. M. Baskett), 40. (O)—Leading article, 52 Correspondence on, 90, 127, 167, 237, 308, 349, 382, 416, 454, 526, 588, 656
Public opinion and preventive medicine, 646
Public Vaccinator s' Association. *See* Association
Public work, medical fees for (Ireland), 655
Puerilism of war, 194
Puerperal fever. *See* Fever
Puerperal sepsis (Berry Hart), 296
Puerperal suppression of urine. *See* Pregnancy *and* Urine
Pulmonary infection, mode of infection in (Thomas Camp bell), 185
Pulmonary lesions, therapeutic value of oxygen in (Jonathan C. Meakins), 324. (O)
Pustule, malignant, case of in which the incubation period was known (H. J. McCurrich), 828
Pye's Elementary Bandaging and Surgical Dressings, rev., 190
Pyloric obstruction, partial (A. Ernest Maylard), 626. (O)
Pylorospasm and pyloric hypertrophy, atropine in, 551
Pyogenic infections, immunized donors in blood transfusion in (Captain H. J. B. Fry) 290. (O)
Pyrexia of uncertain origin and enteric fever (leading article), 373

Q.

Quadruplets, 558
Queen Alexandra's Fund. *See* Fund
Quinine administration, mode of, 23, 60, 163, 454, 756
Quinine excreted in the faeces, 278
Quinine, idiosyncrasy to, 258

Quinine, intramuscular injections of, 25, 99
Quinine in malaria. *See* Malaria
Quinine, price of 124, 173, 306—(Parliamentary questions), 306, 686
Quinine stores, sale of (parliamentary question), 686
Quinsy, antistreptococcic serum in (Noel C. Forsyth), 361. (O)
QUIRKE, Joseph, obituary notice of, 69

R.

R.A.M.C. as a career, 29. *See also* Army, British
Rabies in Holland, 525
Rabies in imported dogs (parliamentary question), 808
Rabies muzzling order (parliamentary question), 414
RACE, Joseph: *Chlorination of Water*, rev., 573
Radiography, review of books on, 405, 770. 798
Radiology, diploma in, 55—Scientific study of, 341
Radiology, war lessons for (C. Thurstan Holland), 353. (O)
Radio-therapy in cancer of uterus, 480
Radium Institute—Dublin: Annual report, 550—London: Annual report. 640; leading article on, 644—Manchester: Report, 745
Radium-therapy (Rupert Hallam), 736
Radium-therapy in advanced cancer of cervix, 806. 829, 850. *See also* Cancer
Radium treatment in war injuries in the neighbourhood of nerves, effects of (Captain Walter C. Stevenson), 862. (O)
Railway Clearing House on increase of rates, 489
RAINES, R.: Taxation of motors, 555
RAINS, Robert H., obituary notice of, 884
RAISON, Cyril A.: Ruptured malarial spleen, splenectomy, recovery, 827. (O)
RAMSAY, Jeffrey: Blood transfusion in nephritis, 766. (O)
Ramsgate, note on, 525
RANKEN, David: Labyrinthine reaction of experienced aviators, 860. (O)
Rare accidents. *See* Accidents
Rarity, 374
Rating, local, 277
Rats and plague, 816, 856
RATTRAY, Lieut.-Col. M. MacGregor, obituary notice of, 70
RAW, Nathan, appointed to assist in selection of village settlements for tuberculous men, 423—An attenuated tubercle vaccine, 538. (O)
RAYSON, H. Knights: Mode of quinine administration, 454
Reading by ear, 692
Record tramp? 692, 726. *See also* Tramp
Recruits, health conditions of (parliamentary question), 720
Red Cross, Armenian, continued appeal, 815
Red Cross, British, and Order of St. John: Total amount received by Joint Council, 36
Red Cross Committee, International, institutes the Florence Nightingale medal, 786
Red Cross Congress at Geneva, 377
Red Cross fields of labour, extension of (Australia), 811
Red Cross Society of China, 755
Red Cross Society, Polish, of Great Britain, 884
Red Cross Societies, League of, meeting of General Council, 71, 267, 337, 377, 547—Leading article on, 547
REDDING, J. Magnus: *Aids to Electro-therapeutics*, rev., 770
REECE, Richard J., appointed senior medical officer to the Ministry of Health, 173
REES, Ferdinand: Co-operation between hospitals, 418
Reformative treatment of soldier prisoners (Australia), 811
Refraction work, cycloplegia in routine (N. Bishop Harman), 598 (O)
Registrar-General's department (parliamentary question), 305
Registrar General's quarterly return, 457, 752—Annual report, 775, 802, 836, 874. *See also* Vital statistics
Regius Chair of Medicine at Oxford, 344
REID, G. Archdall: Prevention of venereal disease, 128
Renal disease (Charles R. Box), 356. (O)
Renal function in nephritis (J. B. Leathes), 403
Renal secretion, review of book on, 606
RENTON, J. Mill: Note on two cases of horse-shoe kidney, 601
Reproductive organs and other glands of internal secretion, functional connexion between (Evelyn E. Hewer), 293. (O)
Research Institute for Aberdeen, proposed, 438
Research Institute, Central, Hampstead (parliamentary question), 751
Research Institute for all India, proposed, 344
Respiratory movements, antenatal, 877
Restaurants, non-alcoholic, increase of in Zurich, 443

Reviews of Books:
Advice to a Mother (Chavasse), 368
Altitude and Health (F. F. Roget), 298
American Frohse Life-size Anatomical Charts, 16
Anaesthesia, Art of (P. J. Flagg), 117
Anaesthetics, Handbook of (J. Stuart Ross), 117

Reviews of Books (*continued*):
Anatomy, Cunningham's Manual of (edited by Arthur Robinson), 367
Animal Parasites and Human Disease (Asa C Chandler), 118
Ante-natal and Post-natal Child Physiology, Pure and Applied, Principles of (W. M. Feldman), 572
Asthma (Orville H. Brown), 869
Austrian Medicine: Wiener Archiv für Innere Medizin (W. Falta and K. F. Wenckebach), 574
Baby, The (E. A. Saunders), 368
Baby, Our: For Mothers and Nurses (Mrs. J. Langton Hewer), 368
Baby Welfare: A Guide to its Acquisition and Maintenance (W. E. Robinson), 368
Baby's Food (Isaac A. Abt), 368
Bacteria, Transmutation of (S. Gurney-Dixon), 297
Biological Chemistry. *See* Chemistry
Blood Pressure: La tension artérielle en clinique. Sa mesure, sa valeur séméiologique (L. Gallavardin), 503
Bodily Changes in Pain, Hunger, Fear, and Rage (Walter B. Cannon), 440
Breast, The: its Anomalies, its Diseases, and their Treatment (John B. Deaver and Joseph McFarland), 675
British Journal Photographic Almanac 331
British Nurse in Bolshevik Russia (Margaret H. Barber), 799
Burdett's Hospitals and Charities, 1919, being the Year Book of Philanthropy and the Hospital Annual (Sir Henry Burdett), 49
Cambridge Note Book for Practical Biology [Zoology] (edited by J. Stanley Gardiner and J. A. Borradaile), 154
Card Test for Colour Blindness (F. W. Edridge-Green), 502
Cerebro-cranial Injuries: Traumatismes Cranio-Cérébraux (H. Duret), 830
Change of Life, its Difficulties and Dangers (Mary Scharlieb), 708
Charaka Club, Proceedings of, vol. v, 1919, 16
Chavasse's Advice to a Mother (edited by T. D Lister), 368
Chemistry, Biological, Introduction to the Study of (S. B. Schryver), 154
Chemistry, Elementary Colloid. Laboratory Manual of (Emil Hatschek), 543
Chemistry, Elementary Practical (J. E. Myers and J. B. Firth), 190
Chemistry in Everyday Life (Ellwood Hendrick), 190
Chemistry, Legal, and Scientific Criminal Investigation (A. Lucas), 607
Chemistry, Industrial, Catalysis of (G. G. Henderson), 154
Chemistry: Praktikum der medizinischen Chemie (Sigmund Fränkel), 16
Chemistry for Public Health Students (E. Gabriel Jones), 543
Child Welfare and the Teachings of Certain Dentists, School Medical Officers, Medical Officers of Health, and other Medical Men (J. Sim Wallace), 607
Children's Diseases: Säuglingskrankheiten (Walter Birk), 771
Chlorination of Water (Joseph Race), 573
Christianity and Christian Science (M. Carta Sturge), 16
Concise Chronicle of Events of the Great War (R. P. P. Rowe), 738
Conservancy Manual of (Jahar Lal Das), 471
Consumptives, Advice to: Home Treatment, After-Care, and Prevention (Noel Dean Bardswell), 708
Coolidge Tube: Its Scientific Applications, Medical and Industrial (H. Pilon), 770
Country Cousin at Cambridge (Lilian Clarke), 869
Crippen, Hawley Harvey, Trial of, 299
Critical Age of Women (Walter M. Gallichan), 708
Cystoscopy and Urethroscopy, Treatise on (Georges Luys), 541
Dental Caries in Relation to Oral Osmosis (Regnar Eckerman), 189
Diathermy in Medical and Surgical Practice (Claude Saberton), 869
Dictionary, Popular Chemical, 226
Diet, Effect of on Endurance (Irving Fisher), 16
Diet in Health and Disease (Julius Friedenwald and John Ruhräh), 262
Diet Lists of the Presbyterian Hospital, New York City (Herbert S. Carter), 16
Diphtheria, Measles, Scarlatina: Lectures to Students on (Frank V. G. Scholes), 573
Domus Doloris (W. Compton Leith), 639
Education in War and Peace (Stewart Paton), 640
Electro therapeutics, Aids to (J. Magnus Redding), 770
Electrolysis in Chemical Industry, Applications of (Arthur J. Hale), 154
Encyclopaedia Medica, vol vi, 118
Engines of the Human Body (Arthur Keith), 638
Entomology for Medical Officers (A. Alcock), 707
Ergebnisse der gesamten Medizin (Th. Brugsch), 639
Evening Play Centres for Children (Janet Penrose Trevelyan), 262

Reviews of Books (*continued*):
Eyes Right (James M. Macphail), 441
Face, Plastic Surgery of, 543
Feminism and Sex-extinction (Arabella Kenealy), 676
Field Ambulance: With the 1/1st Lowland Field Ambulance in Gallipoli (Colonel G. H. Edington), 503
Fly (House), its Life-history and Practical Measures for its Suppression (Major E. E. Austen), 607
Food Poisoning and Food Infections (William G. Savage), 225
Fortnightly Review for May, 771
General Medical Council Minutes, 331
Genito-Urinary Surgery, an Outline of (G. G. Smith), 49
G.H.Q. [Montreuil-sur-Mer] ("G. S. O."), 117
Gonorrhoea and its Complications, Textbook of (Georges Luys) 441
Great War and the R.A.M.C. (Lieut.-Colonel F. S. Brereton), 48
Gynaecological Surgery, Textbook of (Comyns Berkeley and Victor Bonney), 708
Gynaecology in General Practice, Guide to (Comyns Berkeley and Victor Bonney). 770
Gynaecology, Handbook of (Bethel Solomons), 15
Gynaecology for Nurses and Gynaecological Nursing (Comyns Berkeley), 870
Gynaecology, Operative, Atlas of (Barton Cooke Hirst), 15
Gynaecology for Students and Practitioners (Thomas Watts Eden and Cuthbert Lockyer), 770
Half-past Twelve (George W. Gough), 771
Hazell Annual and Almanack for 1920, 49
Heat stroke: Il Colpo di Calore (Salvatore Gangli), 89
Herman's Difficult Labour (revised by Carlton Oldfield), 606
Hernia, Inguinal: the Imperfectly Descended Testicle and Varicocele (Philip Turner), 15
Herschell's Textbook of Indigestion (revised by Adolph Abrahams), 573
Histology, Aids to (Alexander Goodall), 190
Hookworm Disease Controlled by the Intensive Method (H. H. Howard), 542
Horsley, Sir Victor: a Study of his Life and Work (Stephen Paget), 260
House-fly. *See* Fly
Hygiene, Aids to the Mathematics of (R. Bruce Ferguson), 708
Hygiene and Sanitation, Military (Colonel Frank R. Keefer). 88
Imitation of Christ, "Edith Cavell" edition, 407
India, Medical Guide to (Lieut.-Col. E. J. O'Meara), 471
Indigestion, Dr. G. Herschell's Textbook of (revised by Adolphe Abrahams), 573
Industrial Medicine and Surgery (Harry E. Mock), 502
Internal Medicine. *See* Medicine
Internal Secretions and the Nervous System (M. Laignel-Lavastine), 189
Intestinal Entozoa Survey of, both Protozoal and Helminthic, observed among Natives in Johannesburg from June to November, 1917 (Annie Porter), 675
Journal of Neurology and Psycho-pathology, 870
Labour, Difficult, Herman's, 606
Legal Chemistry. *See* Chemistry
Letters of a Widowed Physician to his Daughter, 331
Man, Past and Present (A. H. Keane), 330
Mauritius, Epidemics of (Daniel E. Anderson), 298
Medical Annual for 1920, 738
Medical Guide for India and Book of Prescriptions (Lieut.-Col. E. J. O'Meara), 471
Medical History, Annals of, vol. ii, No. 1 226
Medical Society of London: Transactions vol. xlii, 407
Medical Science: Abstracts and Reviews, 88, 262, 331, 503
Medicine, Internal: A Work for Practising Physicians on Diagnosis and Treatment (Nathaniel B. Potter and James C. Wilson), 676
Military Hygiene and Sanitation, Textbook of Elementary (Frank R. Keefer), 88
Military Orthopaedics. *See* Orthopaedics
Milk: Le Lait Condensé (P. Lassablière), 88
Mind and its Disorders (W. H. B. Stoddart), 297
Miner's Nystagmus: La fatigue de l'appareil visuel chez les ouvriers mineurs (M. Stassen), 572
Minor Surgery and Bandaging (Heath, Pollard, Davis, and Williams), 226
Modern Science and Materialism (H. Elliot), 89
Moses, the Founder of Preventive Medicine (Percival Wood), 607
Mosquitos, British, Handbook of (W. D. Lang), 737
Mothercraft, 368
Music, Foundations of (Henry J. Watt), 407
Musings of an Idle Man (Col. H. R. Firth) 262
Narcotic Drug Problem (Ernest S. Bishop), 573
National Union of Manufacturers (Incorporated), Descriptive and Classified Directory of Members, 49

Reviews of Books (*continued*):
Naval Operations (Sir Julian S. Corbett), 637
Nerves, Pocket Notes on (T. Muirhead Martin), 118
Nervous and Mental Diseases (Archibald Church and Frederick Peterson), 471
Nose and Throat Diseases (Herbert Tilley), 830
Nose, Throat, and Ear Diseases (W. G. Porter), 830
Nursery School (Margaret Macmillan), 367
Nursery Schools: A Practical Handbook, 299
Nutrition of the Fetus (J. Morris Slemons), 470
Obesity: Grandes et Petites Obésités: Cure Radicale (Francis Heckel), 118
Open-air Schools: L'Ecole de Plein air et L'Ecole au Soleil (P. Armand-Delille and Ph. Wapler), 154
Ophthalmic Operations, Textbook of (Harold B. Grimsdale and E. Brewerton), 606
Orthopaedic Treatment of Gunshot Injuries (Leo. Mayer), 707
Orthopaedics, Military Physical: Part I—Gunshot Wound of Nerve (Lieut.-Colonel Arthur Stanley Herbert), 831
Oscar Montagu, Paranoiac (George Lincoln Walton), 471
Oto-Rhino-Laryngology (Georges Laurens), 830
Pennsylvania Tenth Annual Report of Commission of Health for Commonwealth of, 831
Peripheral Nerves, Anatomy of (A. Melville Paterson), 88
Peritoneum, The: Vol. I, Structure and Function in Relation to the Principles of Abdominal Surgery: Vol. II, Diseases and their Treatment (Arthur E. Hertzler), 15
Physical Diagnosis, Principles and Practice of (John C. Da Costa), 331
Physiology of the Central Nervous System and Special Senses, 870
Physiology, Human, Essentials of (D. Noël Paton), 799
Physiology, Human, Principles of (Ernest H. Starling), 676
Physiology: La Physiologie (Maurice Arthus), 540
Physiology: Lehrbuch der Physiologie des Menschen (Zuntz and Loewy), 154
Physiology of Vision (F. W. Edridge-Green), 502
Post-mortem Manual (Charles R. Box), 470
Prophylaxia Rural no Estado do Paraná (Heraclides Cesar de Souza Araujo), 738
Psycho-analysis (Barbara Low), 640
Psychology and the Day's Work: A Study in the Application of Psychology to Daily Life (Edgar James Swift), 154
Psychology of the Normal and Subnormal (Henry Herbert Goddard), 470
Psychologies (Sir Ronald Ross), 262
Psychology from the Standpoint of a Behaviorist (John B. Watson), 771
Physiology in Surgical and General Practice, the New (A. Rendle Short), 738
Pye's Elementary Bandaging and Surgical Dressing (edited by V. Zachary Cope), 190
Quin, Henry, M.D., President and Fellow of the King and Queen's College of Physicians in Ireland and King's Professor of the Practice of Physic [1718-1791] (T. Percy C. Kirkpatrick), 407
Radiography of the Chest (Walker Overend), 798
Radiography in the Examination of the Liver, Gall Bladder, and Bile Ducts (Robert Knox), 405
Radiology: Éléments de radiologie (E. Albert Weil), 770
Rambling Recollections (A. D. Rockwell), 639
Recklinghausen's Disease: Il Morbo di Recklinghausen (Nina Samaja), 799
Reminiscences of Three Campaigns (Sir Alexander Ogston), 87
Renal Secretion: Physiologie normale et pathologique des reins (L. Amand), 605
Rest, Suggestion, and other Therapeutic Measures in Nervous and Mental Diseases (Francis X. Dercum), 367
Road to Endor (Lieut. E. H. Jones), 542
Salies-de-Béarn: Quelques précisions rapides sur Salies-de-Béarn et le rôle de ses Eaux en Chirurgie (Dr. David), 831
Scientific Authority for Total Abstinence, Part II: Alcohol in Relation to the Nervous System, with special reference to its action on the brain (Courtenay C. Weeks), 503
Scottish Women's Hospitals, History of (edited by Eva Shaw), 153
Sexual Disabilities of Man, their Treatment and Prevention (Arthur Cooper), 771
Sexual Diseases: Die Geschlechtskrankheiten (Karl Zeller), 870
Shell-shock and other Neuropsychiatric Problems (E. E. Southward), 574
Sight Testing Made Easy (W. Wright Hardwicke), 471. *See also* Vision
Skin Diseases, Handbook of (Frederick Gardiner), 676
Small-pox and Vaccination, Half a Century of (John C. McVail), 605
Spiritism, Modern (A. T. Schofield), 542

Reviews of Books (*continued*):
Stanford University Medical Publications, 738
Surgery of Egypt (Frank Cole Madden), 405
Surgery, Groundwork of (Arthur Cooke), 225
Surgery, Manual of [Rose and Carless] (Albert Carless), 769
Surgery, Minor, and Bandaging (Heath, Pollard, Davis and Gwynne Williams), 226
Surgical Operations: Textbook for Nurses (E. W. Hey Groves), 471
Surgery of the Temporal Bone (Sir Charles A. Ballance and Charles David Green), 798
Surgery, Textbook of (W. Q. Wood), 799
Sussex in Bygone Days (Nathaniel Paine Blaker), 226
Syphilis, Acquired, Atlas of the Primary and Acquired Lesions of in the Male (Charles F. White and W. Herbert Brown), 541
Syphilis in Childhood (Leonard Findlay), 366
Syphilis, Pulmonary: Anatomia patologica y patogenia de la sifilis pulmonar (Pedro I. Elizalde), 869
Syphilis, the Third Great Plague (John H. Stokes), 504
Teeth, Microscopic Anatomy of (J. Howard Mummery), 406
Third Great Plague (John H. Stokes), 504
Throat and Nose Diseases (Herbert Tilley), 830
Throat, Nose, and Ear Diseases (W. G. Porter), 830
Toasts, Rakes, and Cits, 870
Totem and Taboo, Resemblances between the Psychic Lives of Savages and Neurotics (Sigmund Freud), 502
Treatment, Physiological Principles in (W. Langdon Brown), 188
Tropical Diseases, Diagnostics and Treatment of (Rear Admiral E. R. Stitt), 299
Tuberculosis: Feststellung und Behandlung der Tuberkulösen Infektion mittels antitoxischer Heilkörper (Emanuel Weiu), 16
Turner, Sir William, K.C.B., F.R.S. (A. Logan Turner), 439
Typhoid Fever (Frederick P. Gay), 88
Urethra, Male, Diseases of (Irvin S. Koll), 406
Urethroscope in the Diagnosis and Treatment of Urethritis, a Contribution to Urethroscopy (Major N. P. L. Lumb), 48
Urology, Modern (edited by Hugh Cabot), 470
Urology: Urologisches Praktikum (I. Cohn), 831
Urology, Textbook of, in Men, Women, and Children, including Urinary and Sexual Infections, Urethroscopy, and Cystoscopy (V. C. Pedersen), 225
Urology: Essai d'Urologie Pathologique des Pays Chauds (Joseph Khouri), 639
Venereal Disease, its Prevention, Symptoms, and Treatment (Hugh Wansey Bayly), 639
Venereal Diseases, Manual of (A. C. Magian), 331
Venereal Diseases for Students, Manual of (L. W. Harrison), 638
Venereal Problem (E. T. Burke), 190
Vision: Card Test for Colour-blindness (F. W. Edridge-Green), 502
Vision, Physiology of, with special reference to Colour-blindness (F. W. Edridge-Green), 502
War Diseases and Pensions (R. M. Wilson and W. M. T. Wilson), 504
War Nursing (Charles Richet), 504
War Surgery of the Face: Les fractures de guerre du maxillaire inférieur (A. Herpin), 543
War Surgery of the Face (John B. Roberts), 190
War Surgery, Manual of (Colonel Seymour Barling and Major J. T. Morrison), 459
War Surgery, Italian: Ferite del Capo e dell' Addome in un Ambulanza Chirurgica d'Armata (G. G. Forni), 541
Whitaker's Almanack for 1920, 49
Work of V.A.D. London 1 during the War (edited by Stanley Unwin), 574
Wounds and Injuries, After-Treatment of (R. C. Elmslie), 868
X-ray Observations for Foreign Bodies and their Localization (Captain Harold C. Gage), 153
X-ray Plates and Films, Systematic Development of (Lehman Wendell), 770
Yearbook of Pharmacy, 225

Revue Générale d'Ophtalmologie, reappearance of, 253
Revue de la Tuberculose, resumption of publication, 315
Rewards for medical discovery, 26
Reynolds and Branson, centenary of, 241
REYNOLDS, James Emerson, obituary notice of, 387
REYNOLDS, H. S.: Cold water and antipyretic drugs, 206
Rhinoplasty and cheiloplasty (Rushton Parker), 12. (O)
RIBBERT, Hugo: Origin of tumours, 53
RICE-OXLEY, Douglas George, appointed Surgeon-in-Ordinary to Princess Beatrice, 205—Holds a successful mayoral reception, 351
RICHARDS, Meredith, appointed to Head Quarters of Ministry of Health, 785
RICHET, Charles: *War Nursing*, rev., 504
RIGGALL, Robert M.: Forgetting, psychological repression, 131
Ringworm of nails, simple treatment of (Robert Craik), 185
Ringworm, treatment of (W. H. Elford), 867
Riviera, The, 24
RIVIERE, Clive: Artificial pneumothorax 522
RIXON, C. H. L.: Forgetting: psychologica repression, 201
ROAF, H. E.: Case of diphtheroid septicaemia, 13
ROBERTS, A. B.: Pin in alimentary canal, 424
ROBERTS, Lieut.-Col. Alfred Ernest, obituary notice of, 855
ROBERTS, John B.: *War Surgery of the Face*, rev., 190
ROBERTS, Richard Lumley, obituary notice of, 690
ROBERTSON, Robert: Vaccines in obstetrics and gynaecology, 437
ROBERTSON, H. K.: Treatment of malaria 199
ROBINSON, John: Prevention of venereal disease, 273
ROBINSON, Robert, elected Fellow of Royal Society, 344
ROBINSON, Sir William Arthur, appointed First Secretary to the Ministry of Health, 582
ROBINSON, W.: Taxation of motor cars, 576
ROBINSON, W. E.: *Baby Welfare: a Guide to its Acquisition and Maintenance* rev., 358
Rockefeller benefactions, 24—New gift, 24—Gift to University College and Hospital, 799, 834, 838—Leading article, 838—Correspondence on, 883
ROCKWELL, A. D.: *Rambling Recollections*, rev., 639
ROGERS, Kenneth: Two cases of hemiplegia, 220
ROGERS, Lieut.-Col. Sir Leonard: Further work on antimony intravenously in filariasis, 596. (O)
ROGET, F. F.: *Altitude and Health* rev., 298
ROLLESTON, Sir Humphry: Appreciation of Sir William Osler, 65—Aims and methods of graduate study, 77. (O)—Appendix and gall-bladder dyspepsia, 317. (O)—(and H. J. WARING): Graduate education in the United States, 833
Roman netting needle for winding a surgical thread, 458
ROOCROFT, Colonel W. Mitchell, appointed J.P. for County Palatine of Lancaster, 35
ROOD, Felix: Anaesthesia in throat operations 295
RORKE, Margaret: Gonorrhoeal vulvo-vaginitis in a newborn infant, 671
ROSS, J. Stuart: *Handbook of Anaesthetics*, rev., 117
ROSS, Sir Ronald: Mode of quinine administration, 130—*Psychologies*, rev., 252—Awards for medical discovery, 486
ROSS, Brigade Surgeon William George, obituary notice of, 71
ROTH, Paul Bernard: Fracture dislocations of the ankle, 62
ROUT, Ettie A.: Prophylaxis and venereal disease amongst the Anzacs, 202
ROUTH, Amand: Prevention of venereal disease, 98
ROWE, R. P. P.: *Concise Chronicle of Events of the Great War*, rev., 738
ROWLANDS, R. P.: Gall stones, 655. (O)
ROWNTREE, Cecil: Origin of tumours, 132—Spontaneous rupture of subclavian artery, 325
Royal Faculty of Physicians and Surgeons of Glasgow: Admission of Fellows, 335, 755, 854—Accepts case of surgical instruments used by Lord Lister, 385—Representative on General Medical Council, 588
Royal Institute of Public Health Congress. *See* Congress
Royal Irish Constabulary, medical attendance on, 234
Royal Mail Steam Packet Company, sailings, 103
Royal Medical Benevolent Fund. *See* Fund
Royal Sanitary Institute Congress, 438
Rubber Growers' Association offers prizes for new ideas on rubber, 855
RUHRÄH, John (and Julius FRIEDENWALD): *Diet in Health and Disease*, rev., 252
Rupture of membranes. *See* Membranes
RUSS, Sidney, appointed first incumbent of Joel chair of physics, 315
RUSSELL, Gladys J. C.: Case of cervical abortion 363
RUSSELL, Wilfred A.: Prevention of venereal disease, 62
Russia: Medicine in Bolshevist Russia, 54—Typhus fever in, 751
RUTHERFORD, A. H.: Ileo-caecal valve, 553
RUTHERFORD, Sir Ernest, delivers first Mackenzie Davidson Memorial Lecture, 581
RYLE, Dr.: Oxygen therapy, 152

S.

St. Andrews Institute for Clinical Research (leading article), 119. *See also* Clinical
St. John, Order of, 29, 171
St. Kilda, influenza in, 654
SABAWALA, B. P.: Volvulus of the whol jejuno-ileum, 221

BABERTON, Claude: *Diathermy in Medical and Surgical Practice*, rev., 869
"Safety first," 848
Salaries of medical officers of local authorities, 230; of school medical officers, 686, 847
Salaries of Poor Law medical officers, 234, 783
Sale of Food and Drugs Acts, duties of local authorities under, 173
Saline taste in mouth, remedy for, 660
Salvarsan, composition of (leading article), 804
Salvarsan injections, intracarotid, 162
Salvarsanized serum in sleeping sickness (Claude H. Marshall), 702. (O)
SAMAJA, Nina: *It Morbo di Recklinghausen*, rev., 799
SAMWAYS, D. W.: Chameleon influenza, 424—Acute pulmonary oedema, 726
Sanatorium hospital for the well-to-do, 883
Sanatorium superintendents decide to form a society, 351
Sanatorium treatment (parliamentary question), 482, 650—"After-care," 650
Sanatoriums for tuberculosis: Proposed for merchant seamen, 229—For uncertifiable mental cases (parliamentary question), 414—Objections to proposed site of the Belfast sanatorium, 617, 783—Correspondence on, 619, 688
Sandfly fever. *See* Fever
Sanitary science research, Grocers' scholarships for, 489
Sarcoma, mammary, in old age (T. C. Graves), 81
Sarcoma, spindle-celled (W. W. King), 224
SARGENT, Percy: Surgical aspects of spinal tumours, 37. (O)
SASUN. Devi Dayal, trial of and sentence on, 589, 754
SAUGMAN: Thoracoplasty in pulmonary tuberculosis, 717
SAUNDERS, E. A: *The Baby*, rev., 368
SAUNDERS, William, obituary notice of, 813
Saunders, W. B. and Co.: Catalogue of medical books, 885
SAVAGE, William G.: *Food Poisoning and Food Infections*, rev., 225
Sawyer and Co.'s catalogue of medical books, 148
SCALES, J. E.: Note on a tuberculous cow, 400
Scandinavian medical journals, 55
SCHARLIEB, Mary: *Change of Life, its Difficulties and Dangers*, rev, 708
SCHOFIELD, A. T.: *Modern Spiritism*, rev, 542
SCHOLES, Frank V. G.: *Lectures to Students on Diphtheria, Measles, Scarlatina*, rev., 573
School children, medical inspection and treatment of, Board of Education draft regulations, 481—London County Council's proposals, 483—Fees for treatment of, 883
School medical officers' salaries. *See* Salaries
Schools, elementary, medical examinations in (parliamentary question), 615
Schools, Metropolitan Medical, Conference, 885
Schools, secondary and continuation, local authorities to provide for medical inspection of, 241, 591, 855
SCHRYVER, S. B: *An Introduction to the Study of Biological Chemistry*, rev., 154
SCHULLER, Walter Joseph, obituary notice of, 813
Sciatica, treatment of, 856
Scientific investigation, State grants for, deputation to Right. Hon. A. J. Balfour, 346—Note on, 342
Sclerema neonatorum associated with placenta praevia (A. E. Hodder), 634
Sclerodermia, remarks on (Frank H. Barendt), 44. (O)

Scotland:
Anatomy inspector, 617
British Orthopaedic Association, 687
Central Midwives Board for Scotland, 379
Colliery Surgeons' Committee, 27
Craigleith Military Hospital, 270
Diamond jubilee of a Scottish practitioner (George Banks), 127
East of Scotland Overseas Medical Club, 196
EDINBURGH:
Clinical meeting of Edinburgh Branch, 234, 348
Edinburgh Medical Journal, 127
Greater Edinburgh, 617
"Liberton," 810
Lister Memorial Institute, the proposed, 95
Morison lectures, 270
Neo-natal death rate, 270
Royal Infirmary, 234
Royal Maternity and Simpson Memorial Hospital, 809
Stillbirths rate in, 687
University report 27—Extensions at, 617. *See also* University
General Nursing Council for Scotland, 127, 584, 752
GLASGOW:
Limbless hospital (Erskine), 197
Post-graduate teaching in, 721
Radium in cancer, 483
Royal Infirmary, 270
Small-pox in, 483, 584, 617, 654, 687, 721, 782, 848, 881
Western Infirmary, 58
Grein, C. E., death of, 95
Highlands and Islands Medical Service, 848

Scotland (*continued*):
Hospitals and nursing services, 848, 880
Housing, 95
Influenza in St. Kilda, 654
Lethargic encephalitis, 452
Malaria in Scotland, 654
Obstruction of a doctor's car, 783
Radium in cancer, 483
School health administration, 518
Scottish Board of Health, 196—Consultative councils, 196, 452—Lethargic encephalitis, 452—School health administration, 518—Village settlements for tuberculous ex-service men, 654—Venereal diseases treatment, 752
Scottish Poor Law Medical Officers' Association, 166
Sir James Simpson's daughter, 167
Small-pox in Scotland, 483, 584, 617, 654, 687, 721, 782, 848, 881
Venereal diseases treatment, 752
Village settlements for tuberculous ex-service men, 654

Scotland, East of, Overseas Medical Club, 196
SCOTT, J. M. Duncan: Infection in pneumonia, 816
SCOTT, Surgeon-Major Ralph Robert, obituary notice of, 853
SCOTT, William S.: Acute oedema of lungs, 571
Scottish Board of Health: General Nursing Council for Scotland, 127, 752—Consultative Councils, 196, 418, 452—Election of officers, 418—Lethargic encephalitis, 452—Administration, 518—Village settlements for tuberculous ex service men, 654—Malaria in Scotland, 654—Treatment of venereal diseases, 752
Scottish colliery surgeons and the Miners' Union, 171, 239
Scottish Poor Law Medical Officers' Association, 166 *See also* Association
Scottish Women's Hospitals, History of, rev, 153
Scurvy, night blindness in, 526
Scurvy, treatment of (W. H. Willcox), 73. (O)
Sea sickness, atropine in, 23
SECRETAN, W. Bernard: Proposed taxation of motor cars, 660
SEMON, H. C.: *X*-ray treatment of acne vulgaris, 700. (O)
Senile melancholia, 104
Sepsis, puerperal (Berry Hart), 296
Septicaemia, diphtheroid (H. E. Roaf), 13
Serbia, Ministry of Social Welfare, Belgrade, invites co-operation with Serbian Relief Fund, London, 245
Serum, antistreptococcic, in quinsy (Noel C. Forsyth), 361. (O)
Serum, monotypical, in treatment of cerebro-spinal fever (W. T. Munro), 430. (O)
Service women's compensation (parliamentary question), 306
SHARP, A. C.: Simple paroxysmal tachycardia, 867
SHATTOCK, S. G.: Appendicular concretions, 635
SHAW, B. H.: Significance of acidosis in certain nervous disorders, 695. (O)
SHAW, Eva (editor): *History of the Scottish Women's Hospitals*, rev, 153
SHAW, Fletcher: Advanced cancer of cervix rendered operable by radium therapy, 806, 829
SHAW, Lauriston E.: The machinery of the Association, 63
SHAW-MACKENZIE, J. A.: Copper alanine in inoperable cancer, 174
SHEAF, E. W.: Spontaneous rupture of malarial spleen, 767
SHEILL, Spencer: Circumcision, 768
Shell shock. *See* Shock
SHEPHERD, Flora: Infant welfare centres, 153
SHERA, A. G.: Local clinical laboratories, 59
SHERREN, Major Hugh Godwin, obituary notice of, 456
SHERRINGTON, C. S.: Appreciation of Sir W. Osler, 65
Shingles and chicken-pox (A. Ingram Cooke), 468
Shingles, varicella, epilepsy, and the weather, 487
SHIPLEY, Sir Arthur: Biting insects and children, 659
SHIRLAW, J. Thomson: New lamps for oid in obstetrics, 170
Shock, shell, departmental inquiry on, 648
Shock therapy, protein, 228 *See also* Immunity
SHORT, A. Rendle: *The New Physiology in Surgical and General Practice*, rev., 738
SHUFFLEBOTHAM, Dr.: Oxygen therapy, 152
SILLAR, Sir W. C.: Appreciation of Sir Thomas Fraser, 101
SIMPSON, Evelyn Blantyre, death of, 167
SIMPSON, Garry: Value of calcium lactate, 726
SINCLAIR, Major M.: Treatment of fractures, 198
SINGER, Charles: Magic and medicine, 612—Greek science and modern science, 748
SKERRETT, F. B.: Experimental induction of cancer, 850
SKEVINGTON, J.: Spontaneous rupture of a malarial spleen, 571
Skiagraphy of solid viscera (leading article), 511
Skin diseases, review of books on, 676
Skull, fractures of in civil life, lessons of the war in treatment of (C. M. Kennedy), 630 (O)
SLADDEN, Arthur F.: Epidemic encephalitis, 722
Sleeping sickness in Africa (Captain Basil Spence), 205
Sleeping sickness, salvarsanized serum in (Claude H. Marshall), 702. (O)
SLEMONS, J. Morris: *Nutrition of the Fetus*, rev., 470
Small-pox: In Germany (parliamentary question), 346—in East London (parliamentary question), 378—in Poplar (parliamentary question), 414—Parliamentary questions on, 346, 378, 414, 450, 650—In Glasgow, 483, 584, 617, 654, 687, 721, 782, 881—In Calcutta, 618—In Bolton (parliamentary question), 650—In Scotland, 654, 687, 721, 782, 785, 848, 881—In London, 660—In Bohemia, 725
Small-pox carriers, vaccinal condition of (parliamentary question), 751—Correspondence on, 851
Small-pox, its types and prevention (leading article), 778
Small-pox and vaccination, review of book on, 605
SMETHAM, Alfred, elected president of Society of Public Analysts, 241
SMITH, Edwin, appointed deputy coroner for Westminster and South-West London District, 137
SMITH, Gerard: Spiritualism and mental disease, 660
SMITH, G. G.: *An Outline of Genito-Urinary Surgery*, rev., 49
SMITH, Heywood: Needle in the alimentary canal, 81
SMITH, J. Barker: Chronic pancreatitis, 62, 238
SMITH J. W.: Atony and prolapse of the large intestine, 243. (O)
SMITH, R. Eccles: Volvulus of caecum, double obstruction, 289. (O)
SMITH'S Visiting List, 36
SMITH-SHAND, Surgeon Commander A. K.: Physical therapy in the navy, 683
Smoke abatement, 303
Smoke, the black, tax, 721
SMURTHWAITE, H.: Plea for early treatment of suppurative middle-ear disease, 467. (O)
SMYLY, Sir W.: Schultze's forceps, 48
SMYTH, F. C., obituary notice of, 884
SMYTH, Colonel J.: The Tagliacotian doctrine, 104, 352
SMYTH, J. A.: Acute suffocative catarrh, 670. (O)
SMYTH, Johnson: Sunburnt potatoes, 886
SNODGRASS, William: Appreciation of John Morton, 523
Société Belge de Médecine Mentale, fiftieth anniversary of its foundation, 881
Societies, Conjoint Board of Scientific, annual report, 725
Societies, medical, international organization of, 266—Correspondence on, 272
Society, Assurance Medical: Resolves not to be incorporated with the Royal Society of Medicine, 137—Presidential address, 366
Society, Bradford Medico-Chirurgical:—H. H. White: Brief review of venereal diseases, 469—W. Campbell: Diagnosis of syphilis, 469
Society, Bristol Medico-Chirurgical:—Carey Coombs: The irritable heart, 404
Society, Cardiff Medical:—Professor Emrys-Roberts: The Welsh Mobile Laboratory, 27—Herbert Evans: The urinary system and the *Bacillus coli communis*, 438
Society, Child Study:—Sir Arthur Shipley: Biting insects and children, 659
Society, Coroners': Annual meeting, 880
Society, Edinburgh Obstetrical:—F. J. Browne: Hydatidiform mole, 152—Berry Hart: Puerperal sepsis, 296—Robert Robertson: Value of vaccine treatment in obstetrics and gynaecology, 437—J. W. Ballantyne and F. J. Browne: Colour in pregnancy, 438—Robert Jardine and A. M. Kennedy: Puerperal suppression of urine, 767—Eardley Holland: Fetal intracranial haemorrhage during birth, 868
Society, Glasgow Royal Medico-Chirurgical:—Archibald Young: Intussusception of the appendix, 365—W. S. Syme: Malignant disease of larynx, 365—Adam Patrick: Multiple oriental sore, 365—W. F. Somerville: The Bergonié chair, 365—W. H. Brown: Plea for the early recognition of syphilis, 501
Society, Harveian: Annual meeting and conversazione, 329—Sir Thomas Horder: Nerve symptoms in acute infections, 404
Society, Hunterian:—John Adams: Antenatal and post-natal syphilis, 603
Society, Illuminating Engineering, discussion on illumination in mines, 327
Society, Italian, of Pediatrics: Next meeting September, 590
Society, Jenner, 842
Society, Lancaster Gate Medical, to be called in future the Psycho-Neurological Society, q.v.
Society, Linnean, to increase its subscription, 454
Society, London and Counties Medical Protection: Annual meeting, 475—Deputation *re* protection of medical officers of venereal disease clinics, 691

Society, Manchester Medical:—R. B. Wild: Some racial problems, social evils, and modern crusades, 234—T. H. Pear: Psychological analysis, 736

Society, Medical, of London:—John Freeman: Susceptibility to foreign proteins, 188—H. Drinkwater: Naked-eye diagnosis of throat infections, 259—W. H. Willcox and Leonard Hill: Heat hyperpyrexia, 401; Discussion, 401—Sir Charters Symonds: Surgery of the chest, 401—*Transactions*, vol. xlii, rev., 407—147th anniversary dinner, 447—Annual oration (Sir D'Arcy Power): The Rev. John Ward and Medicine, 674

Society of Medical Officers of Health: Honorary Fellows, 305

Society of Medical Officers of Maternity and Child Welfare Centres, formation of, 315

Society, Medical Sickness, Annuity, and Life Assurance: Note on, 94—Annual meeting, 475—Proposed conversion into a company, 589

Society, Medico-Chirurgical, of Edinburgh:—Sir Robert Philip: Treatment of tuberculosis, 704—Discussion on, 704—Chalmers Watson: Enteroptosis and allied conditions, 797

Society, Midland Medical:—Heywood Smith: Needle in alimentary canal, 81

Society, North of England Obstetrical and Gynaecological:—J. W. Bride: Results of hysterectomy for fibroids, 14—Exhibition of cases, 14, 224—W. W. King: Diagnosis of gonorrhoea in the female, 364—W. Gough: Expectant treatment in eclampsia, 636

Society, Nottingham Medico-Chirurgical:—C. H. Cattle: Soldier's heart, 188

Society, Ophthalmological, of the United Kingdom: Annual Congress, 671, 707—J. B. Story: Ophthalmological teaching, 671—Papers, clinical meeting, visit to St. Margaret's Hospital, 707

Society, Psycho-Neurological: Election of officers, 423—Clinical meeting, 605—Exhibition of cases, 605

Society of Public Analysts:—C. A. Mitchell: Persistence of finger-prints on documents, 387

Society for Relief of Widows and Orphans of Medical Men, 755—Annual meeting, 755

Society, Research Defence, attains its twelfth year, 121

Society, Royal: Election of Fellows, 344

Society, Royal of Arts: Leon Gaster: Industrial lighting and its relation to efficiency, 557

Society, Royal Edinburgh Physical:—Captain Basil Spence: Sleeping sickness in Africa, 205

Society, Royal, of Medicine:

A. D. Waller: Lecture on the measurement of emotion, 259

John Freeman: Toxic idiopathies, 403

Sir Jagadis Bose: Plant response, 412

Appoints representatives to the Federation of Medical and Allied Societies, 438

H. E. Powell appointed librarian, 623

Section of Anaesthetics.—Clarence Mott: Intratracheal chloroform, 13—Felix Rood: Anaesthesia in throat operations, 295—Discussion, 296—Mrs. Dickinson Berry: Anaesthesia for thyroid operations, 635

Section of Study of Children's Diseases.—Discussion on influence of vitamines in infant feeding, 328

Clinical Section.—Sir Anthony Bowlby: War methods in civil practice, 86

Section of Epidemiology and State Medicine.—F. G. Crookshank: First principles and epidemiology, 186—Matthew Young: Periodicity of epidemics of whooping-cough measured by the periodogram, 366—P. Hartley and C. J. Martin: Diphtheria bacilli in the throat, 796

Section of Laryngology.—Exhibition of cases, 116

Section of Medicine.—W. H. Willcox: Typhus and relapsing fever in Mesopotamia and Northern Persia, 222—Colonel Ransom Pickard and G. W. Lloyd: Early manifestations of scurvy, 329

Section of Obstetrics and Gynaecology.—Gorden Ley: Fifty consecutive cases of utero-placental apoplexy (accidental haemorrhage), 437—A. C. Palmer: Rupture of vagina, 602—Herbert Williamson: Blood transfusion before operation, 603—Lady Barrett: High ammonia coefficient, 603—Discussion on ante-partum haemorrhage (joint meeting with North of England and Midland Obstetrical and Gynaecological Societies), 672, 705—Discussion on rupture of Caesarean section scar, 705—Fletcher Shaw and Arthur Burrows: Advanced cancer of cervix rendered operable by radium therapy, 806, 829—Philip D. Turner: Traumatic rupture of pedicle of a subperitoneal fibroid, 829—Ford Anderson: Rupture of uterus, 829—A. W. Bourne: Spontaneous rupture of uterus following pituitrin, 829

Section of Odontology.—S. F. St. J. Steadman: Dental sepsis in children, 186—Discussion on, 187

Section of Pathology.—Demonstration and papers, 366, 635—S. G. Shattock: Appendicular concretions, 635

Section of Surgery.—R. H. A. Whitelocke: Appendicectomy by a new route, 211, 223—Discussion, 223

Society, Royal, of Medicine (*continued*):

Section of Therapeutics.—Discussion on oxygen therapy, 150—H. H. Dale: Value of alcohol as a therapeutic agent, 294—Discussion, 295

Subsection of Proctology.—W. H. Maxwell Telling: Diverticulitis, 82—Discussion paper, 84, 115

War Section.—Sir Wilmot Herringham: Gas poisoning, 221; Discussion on, 222

Society, Royal Medico-Chirurgical, of Glasgow:—Walter W. Galbraith: Effusion into both knee-joints due to congenital syphilis, 636—Arch. Young: Volkmann's ischaemic contracture of forearm, 636

Society, Royal Statistical:—T. H. C. Stevenson: Class fertility in England and Wales, 604

Society, Royal, of Tropical Medicine and Hygiene, 855

Society, Seamen's Hospital: Report, 458

Society, Sheffield Medico-Chirurgical:—J. B. Leathes: Renal function in nephritis, 403—Discussion on modes of anaesthesia, 539—Rupert Hallam: Therapeutic uses of radium, 736

Society of Superintendents of Tuberculosis Institutions: Election of members, 797—Leonard Hill: Ventilation and heating of tuberculosis institutions, 797

Society of Surgery, International: Next meeting, Paris, 144, 305, 351

Society, Tuberculosis: Decides against affiliation with the British Federation of Medical and Allied Societies, 241—Conference, 737—Discussion on tuberculous ex-soldiers, 737—Discussion on artificial pneumothorax, 737

Society, Ulster Medical:—Major M. Sinclair: Treatment of fractures, 198—Examination in ophthalmology, 198—Papers and cases, 379—Reception, 618—Discussion on public health questions, 688—Annual meeting, 783

Society, United Services Medical: Decides to amalgamate with War Section of the Royal Society of Medicine, 771

Society, Venereal Disease Prevention: Mansion House meeting, 241—Annual meeting, 839 *See also* Venereal

Society, Vermin Repression: Dinner, 103

Society, West London Medico-Chirurgical: Discussion on drug idiosyncrasy, 405—Annual dinner, 647—Award of medals, 647

Society, Zoological:—F. Martin Duncan: Photomicrographs of acari, 276—Notice *re* condensation of papers, 691

Soft answer (Wilks on Addison), 72

Soldier prisoners, reformative treatment of (Australia), 811

Soldiers, blind, 615. *See also* Blind

Soldiers, disabled. *See* Disabled

Soldier's heart. *See* Heart

Soldiers in hospital in the United Kingdom (parliamentary question), 808

Soldiers, limbless, hospitals for, 197. *See also* Hospital

Soldiers, tuberculous (in Sydney), 271—Treatment of (parliamentary question), 720. *See also* Tuberculous ex-service men

Soldiers. *See also* Ex-service men

Solomons, Bethel: *Handbook of Gynaecology*, rev., 15—Uterine cancer, 48

Somerville, W. F.: The Bergonié chair, 365

Souper, Captain H. R.: Metastatic staphylococcal infections of the kidney, 88. (O)

Southampton increases its donation to the Village Centres Council, 264

Southard, E. E.: *Shell Shock and other Neuropsychiatric Problems*, rev., 574

Sowry, Dr.: Oxygen therapy, 152

Spain: Institute of biology and serumtherapy opened in Madrid, 241—Vaccination against small-pox and enteric fever made compulsory in Madrid, 586—Lethargic encephalitis in, 659—Physicians and surgeons of Madrid refuse to treat any but the poor without fee in hospitals and dispensaries, 766

Span of life, 138

Spears, Dr.: Paralysis of left arm and leg, 736

Speculum illuminator, simple, 174

Speech, a time for, 579

Spelman, the late Dr. A. P.: A moving appeal, 689, 721

Spence, Captain Basil: Sleeping sickness in Africa, 205

Spencer, Herbert R.: Lettsomian lectures on tumours complicating pregnancy, labour, and the puerperium, 179, 246, 320, 452. (O)—Note on Charles Combe, 205—Appreciation of Ernst Wertheim, 455—Treatment of uterine cancer, 554—Fibroids complicating pregnancy, hysterectomy, recovery, 554

Spilsbury, Captain Francis James, obituary notice of, 203

Spinal cord, early symptoms and diagnosis of diseases of (Sir F. W. Mott), 857. (O)

Spinal tumours. *See* Tumours

Spiritualism and mental disease, 660

Spirochaetes in bronchiectasis, 14

Spleen, ruptured malarial, splenectomy, recovery (Cyril A. Raison), 827. (O)

Spleen, malarial, spontaneous rupture of (Sir J. Skevington), 571—(E. W. Shear), 767

Spleen, normal, apparent spontaneous rupture of, 63

Spriggs, E. I.: Diverticulitis, 85—Surprises in diagnosis, 563. (O)

Stalker, James M.: Prevention of venereal disease, 129

Stamp duties on patent medicines (parliamentary questions), 482

Stanford University Medical Publications, rev., 738

Stanger, W., presentation to, 198

Stanley, Sir Arthur: Future of the hospitals, 691—Civil motor ambulance service, 784

Staphylococcic infection of the kidney, metastatic (Captain H. R. Souper), 288. (O)

Stapley, Walter: Plea for the tonsils, 851

Stark, A. Campbell: "New lamps for old" in obstetrics, 59

Starkey, W.: Treatment of delirium tremens, 47

Starling, E. H.: Premature announcement about, 94—Goes to India on Government business, 557—*Principles of Human Physiology*, rev., 676

Stassen, M.: *La fatigue de l'appareil visuel chez les ouvriers mineurs*, rev., 572

State grants for scientific investigation, 342, 346. *See also* Scientific *and* Universities

State medical service, whole-time, discussion at meeting of Marylebone Division, 158

State medical service in Ireland, the proposed, meeting in Belfast, 197

State and public health. *See* Public Health

State and venereal disease, 155—Policy of the Medical Women's Federation, 155

Stawell, R. de S.: Fibroids complicating pregnancy, hysterectomy, recovery, 498. (O)

Steadman, S. F. St. J.: Dental sepsis in children, 186

Steen, R. Hunter: Chronic hallucinatory psychosis, 363

Stephens, J. J. W., elected Fellow of Royal Society, 344

Sterility in the male (Kenneth Walker), 10. (O)—Correspondence on, 274, 349

Sterility, tubal (Hastings Tweedy), 604

Stevens, W. Mitchell: Appreciation of Sir W. Osler, 67

Stevenson, T. H. C.: Class fertility in England and Wales, 604

Stevenson, Captain Walter C.: Effects of radium treatment on war injuries in the neighbourhood of nerves, 862. (O)

Steward, F. J.: Treatment of septic peritonitis, 527. (O)

Stewart, George C.: Work of a pensions referee, 132

Stewart, M. J.: Use of polarized light in detection of suture materials embedded in tissues, 663. (O)

Stewart, William, obituary notice of, 724

Stewart Prize, 748

Stillbirths in Edinburgh, 687

Stitt, E. R.: *Diagnostics and Treatment of Tropical Diseases*, rev., 299

Stoddart, W. H. B.: *Mind and its Disorders*, rev., 297

Stokes, John H.: *The Third Great Plague*, rev., 504

Stomach, hour-glass; gastric and pyloric ulcers (Donald M. MacLeod), 115

Stomach, volvulus of (leading article), 548

Story, J. B.: Ophthalmological teaching, 671

Straits Settlements gold medal, 133

Strangeways, T. S. P.: Nutrition of articular cartilage, 661. (O)

Strasbourg, new courses of study at, 530

Street accidents in England and Wales in 1919, 457

Stretton, J. Lionel: Three acute abdominal cases (polypus of stomach, large haemorrhage into wall of caecum, large ovarian cyst), 80. (O)—Fees for treatment of school children), 883

Strong, Sir Thomas: Appreciation of Sir William Osler, 64

Stuart, Sir Thomas Anderson, obituary notice of, 421, 811

Sturge, M. Carta: *Christianity and Christian Science*, rev., 16

Sugar for children under 2, extra ration of, 855

Sullivan, William C., appointed medical superintendent of Broadmoor Asylum, 351

Sulphur, sublimed, in mercurialism, 149

Sundberg, H.: Operation for arterial embolism, 805

Surgeon Rear Admirals, 615. *See also* Navy, Royal

Surgery, review of books on, 48, 225, 405, 469, 502, 541, 675, 769, 798

Surgery, uses of free transplants of the fascia lata in (G. Grey Turner), 79. (O)

Surgical instrument cases, historical, 54

Surgical war honours, 238

Sutherland, Major R. W. (and Captain J. M. Christie): Military orthopaedics, 762. (O)

Suture material embedded in tissues, use of polarized light in detection of, 663. (O)

Swab, unmusical, 104

Swansea, opening of a pathological department, 722

Sweating, profuse, 242; in axillae, 242

Sweden, appoints Commission to report on compulsory insurance against sickness, 557—Tuberculosis conference in, 632

Sweet, W. Sidney: Treatment of pulmonary tuberculosis in private practice, 552

Swift, Edgar James: *Psychology and the Day's Work: A Study in the Application of Psychology to Daily Life*, rev., 154

Sylvester, Assistant Surgeon Henry Thomas, V.C., obituary notice of, 456
Syme the discoverer of waterproofing, 521
Syme, W. S.: Malignant disease of larynx, 365
Symes, J. O.: Prognosis and treatment of chronic nephritis, 494. (O)
Symonds, Sir Charters: Surgery of the chest, 401
Symptoms, mechanism of (leading article), 547
Syphilis, ante-natal and post-natal, 603
Syphilis, arseno-benzol compounds in, comparison of two methods of administering (H. E. Gibson), 114. (O)
Syphilis, arseno-benzol compounds used in treatment of, causing poisoning, 864. (O)
Syphilis, complement fixation test in 877
Syphilis, diagnosis of (W. Campbell), 469
Syphilis, early diagnosis of (E. Harrison), 364—Correspondence on, 416, 486, 620, 688, 753
Syphilis, early recognition of (W. H. Brown), 501
Syphilis, inherited (Frederic H. Haynes), 765
Syphilis insontium (J. C. McWalter), 827. (O)
Syphilis in Western Australia, number of cases notified, 724
Syphilis, review of books on, 366, 541, 869
Syphilis, sites of inoculation lesions in, 388
Syphilis, treatment of (parliamentary question), 346
Syphilis, trifling with, 613

T.

Tabes, visceral analgesia in, 480
Table waters, duty on (parliamentary question), 615
Tachycardia, simple paroxysmal, 867
Tagliacotian doctrine, 72, 104, 174, 352
Taxation, direct, 686. *See also* Budget
Taxation of invalid chairs [motor driven] (parliamentary question), 346
Taylor, Charles Louis, obituary notice of, 33, 101—Book presented to the Library of Royal College of Surgeons in memory of, 346—Elected a member of the French Medical History Society, 387
Taylor, C. B.: Sandfly fever in Mesopotamia, 620
Taylor, H. F Lechmere: An opportunity for invalids, 786
Taylor, J. A.: Routine treatment of malaria in Uganda, 113. (O)
Taylor, James: Neurological jottings, 282 (O)
Taylor, James, presentation to, 849
Telling, W. H. Maxwell: Diverticulitis, 82
Territorial force. *See* Army, British
Territorial general hospital staffs, 238. *See also* Army, British
Tertium quid, 206
Thane, Sir George, proposed portrait of, 525
Theatres, insanitary conditions at, 346
Thomas, J. Lewis: Clinical centres, 520
Thompson, G. S.: Circumcision—a barbarous and unnecessary mutilation, 436
Thomson, Lieut.-Col. D. G., presentation to, 95
Thomson, G.: Apparatus for a man without arms, 20
Thomson, J. W.: An ectopic ovarian cyst, 437
Thomson, Sir StClair, awarded the Médaille de la Reconnaissance Française, 691
Thomson, T Harvey: Fatal poisoning by water dropwort (*Oenanthe crocata*), 795
Thoracoplasty in pulmonary tuberculosis, 717
Thorne, Charles Augustus, obituary notice of, 690
Thorpe, Major Llewellyn Lancelot Graeme, obituary notice of, 690
Throat, diphtheria bacilli in, 796
Throat diseases, review of books on, 830
Throat infections, naked-eye diagnosis of (H. Drinkwater) 259
Throat operations, anaesthesia, 295
Thyroid administration in hibernating dormice, 424
Thyroid extract in myxoedema, life-history of the first case of, 359. (O)
Thyroid gland, papilliferous carcinoma of (Basil Hughes), 362. (O)—Correspondence on, 454
Thyroid operations, anaesthesia for, 635
Tibbles, Sydney: Ocular conditions in influenza, 72
Ticks and relapsing fever, 97, 132, 200, 235, 273, 310
Tilley, Herbert: *Diseases of Nose and Throat*, rev., 830
Time for speech. *See* Speech
Tinea, *x* rays and chrysophanic acid in treatment of (C. J Glasson), 219. (O)
Tissue, faucial and post-nasal lymphoid, in children, chronic infection of 217. (O)
Toasts, Rakes and Cits, rev., 870
Tobacco smoke, asphyxia from inhalation of, 692
Tobacco smoke, experiments on the effect of on frogs, 178
Tomkins, Harding H.: Circumcision—a barbarou: and unnecessary mutilation, 621
Tonsil bayonet, 472
Tonsils, a plea for, 199, 722, 851
Topley, W. W. C. (and others): Pyrexia of uncertain origin and enteric fever, 373
Toxic idiopathies (John Freeman), 403
Toxicological investigation of acute alcoholism in man, 411
Toxin of eclampsia, path of, 469
Toxins and antitoxins (leading article), 266
Tramp, a record, 692, 726
Travancore (South) Medical Mission, report, 822
Travelling facilities for men under treatment. *See* Ex-service
Treatment allowances. *See* Pensions Ministry
Treatment, review of books on, 188
Trevelyan, Janet Penrose: *Evening Play Centres for Children*, rev., 262
Treves, W. W.: Ticks and relapsing fever, 235
Trials, notable, publication of to be resumed, 173, 299
Triboulet, Henri, obituary notice of, 690
Tricoire: Epidemic of hemeralopia, 480
Trinidad: Report of Tuberculosis Prevention Association, 815
Tropical Diseases Bureau, new address, 122
Tropical Medicine, Calcutta School of, 550
Tropical Medicine, London School of: Pass lists, 34, 659—New building, 54 — Post-graduate teaching "elements," 194—Lectures, 717
Tropical medicine, review of books on, 639
Trophoneurosis, facial, with deformity of the hand (I H. Lloyd), 735
Trotter, Wilfred (and Charles Bolton): Jejuno-colic fistula following gastro-jejunostomy, 757 (O)
Tubal sterility. *See* Sterility
Tubb-Thomas, J., presentation to, 241
Tubercle bacilli, direct cultivation of from tissues (G. Haswell Wilson), 146. (O)
Tubercle vaccine, an attenuated, 538. (O)
Tuberculosis, abdominal, some clinical types of (K. W. Monsarrat), 5 (O)
Tuberculosis as affected by the war, 585
Tuberculosis, bovine (parliamentary question), 414
Tuberculosis conference in Sweden, 632
Tuberculosis, deaths from in Boston in 1919, 213
Tuberculosis, epidemiology of (leading article), 444, 478 - (William Gordon), 594. (O)
Tuberculosis, fibroid, 482
Tuberculosis, Friedmann's remedy for, Prussian Committee of inquiry into, 315
Tuberculosis in Germany and the Rhine Provinces, 837
Tuberculosis, institution accommodation for (parliamentary question), 450
Tuberculosis institutions, ventilation and heating of (Leonard Hill), 797
Tuberculous prevention: Reports of Poplar Borough Dispensary, 44 — Experiment at Framlingham (Massachusetts), 206 — Proposed law for in Germany, 315—Appeal from National Association for, 423—In Trinidad, 815
Tuberculosis, pulmonary, duration of, 206
Tuberculosis, pulmonary, early diagnosis of (Thomas Beattie), 111. (O)—Correspondence on, 753
Tuberculosis, pulmonary: Experimental production of, 162; thoracoplasty in, 717; treatment of in private practice 552
Tuberculosis sanatoriums. *See* Sanatoriums
Tuberculosis settlements, village: Deputation to Minister of Health, 476—Correspondence on, 552—Circular letter from Scottish Board of Health, 654
Tuberculosis, surgical, post-graduate courses in, 457
Tuberculosis treatment in London, 782—Report of London Insurance Committee, 782
Tuberculosis, treatment of (Sir R. Philip), 704—Discussion, 704
Tuberculosis in workshops (A. Trimble), 737
Tuberculous cow (J. E. Scales), 400
Tuberculous ex-service men (parliamentary question), 450—Discussion on, 737
Tuberculous infection, mode of infection in (Thomas Campbell), 185
Tuberculous meningitis, with complete recovery (Hugh Barber), 601. (O)
Tuberculous patients, clothing for, 482
Tuberculous soldiers: In Sydney, 271—Treatment of, 720 - Discussion on, 737
Tuffier, Professor: British honour for, 304, 413
Tuke, John Batty, obituary notice of, 588
Tumour, acoustic, familial form of, 496. (O)
Tumour, cerebellar, simulated by cervical caries (Richard R. Armstrong), 499. (O)
Tumours complicating pregnancy, labour, and the puerperium (Herbert R. Spencer), 179, 246, 320. (O)—Leading article on, 373
Tumours, origin of, 53, 132
Tumours of spine, surgical aspects of, 37. (O)
Turnbull, Hubert M.: Report on hypernephroma of kidney, 133
Turner, A. Logan: *Sir William Turner*, rev., 439
Turner, Dawson, reappointed extra medical electrician to Edinburgh Royal Infirmary, 855
Turner, E. B.: Prevention of venereal disease, 99
Turner, G. Grey: Uses of free transplants of the fascia lata in surgery, 79. (O)
Turner, John: Physical basis of mental disorders, 415
Turner, J. G: Tuberculosis sanatoriums, 619
Turner, Philip: *Inguinal Hernia; the Imperfectly-descended Testicle and Varicocele*, rev., 15
Turner, Philip D.: Traumatic rupture of pedicle of a subperitoneal fibroid, 829
Turner, Sir William, review of his life, 439
Turtle vaccine. *See* Vaccine
Tweedy, Hastings: Tubal sterility, 604—Treatment of ante-partum haemorrhage, 672
Tweedy, Sir John: Rats and plague, 856
Tyson, W. J.: Diagnosis and treatment, 619

U.

Uganda, routine treatment of malaria in (J. A. Taylor), 113. (O)
Ulcer, duodenal, acute perforation of: laparotomy: recovery (E. Huntley), 362. (O)
Ulcer, duodenal, new views on the pathology, diagnosis, and treatment of (Arthur F. Hurst), 559. (O)—Correspondence on, 655
Ulcer, duodenal, and the hypertonic stomach, 655, 688
Ulcer, gastric, after gastro-jejunostomy (F. Bolton Carter), 13—(Rushton Parker), 47
Ulcer, gastric, new views on the pathology, diagnosis, and treatment of, 559. (O)
Ulcer, gastric, ruptured, in an old man: laparotomy: recovery, 218. (O)
Ulcers, gastric and pyloric, and hour-glass stomach (Donald M. MacLeod), 115
Umberto I prize, 423

United States of America:
Alcoholic liquor, supply of to doctors, 623
American Hospital in London, progress of, 650, 779
American surgeons mentioned in British dispatches, 725
Army Medical Museum, 163
Athens (New York) requires a permit from local health officer before unlicensed people can sell medicines, etc., 725
Carnegie Corporation of New York intends to give five million dollars to National Academy of Sciences and the National Research Council, 249
"Chiropractors, osteopaths, and other healers" required to submit to State medical examination in South Carolina, 623
Dogs' bill in America, 512
Fees increased in Chicago, 725
Food, clothing, and medical aid for the countries devastated by the war, sum required, 46
Graduate education in (Sir Humphry Rolleston and H. J. Waring), 833
Handicapped Worker, 829
Mary Putnam Jacobi Fellowship, 173, 205
Medical ambassadors to, 410
Medical education, mission from France and Great Britain to visit America to study system of, 525
Medical endowments in, 342
Medical schools in, 481
New York State Hospital Commission report, 165
Paper shortage, 659
Pennsylvania, Tenth Annual Report of the Commissioner of Health for the Commonwealth of, rev., 831
Tuberculosis in Boston, deaths from in 1919, 213
Tuberculosis control, experiment in, 206

Universities, biochemistry in, 841
Universities, State grants to (parliamentary question), 879
University of Aberdeen: Appointments, 422—Degrees and pass lists, 312, 488—Honorary degrees, 312
University of Adelaide: Appointments, 526
University of Birmingham: Post-graduate courses on venereal diseases, 103
University of Bristol: Degrees and pass lists, 275
University of Brussels: Medals of honour awarded, 786
University of Cambridge: Chair of anatomy, 780—Biochemistry endowment, 815—Degrees and pass lists, 171, 203, 275, 312, 384, 422, 658, 724, 785, 854—Diploma of psychological medicine, 102, 814—Diploma in radiology and electrology, 456—Honorary degrees, 854—Honorary Fellows, 384—M.B. examinations, 240—War list, 240
University of Cologne: Number of students, 525
University of Dublin: Degrees and pass lists, 34, 422, 525—Honorary degrees, 422
University of Durham: *Calendar*, rev., 118—Degrees and pass lists, 524
University of Edinburgh: Annual report, 27—Degrees and pass lists, 456—Extensions, 617—Honorary degrees, 456—"Liberton," 810—Spring term examinations, 456
University of Ghent: Proposed course of psychiatry at, 725
University of Glasgow: Accommodation for students, 456—Asher Asher medal awarded, 622—Bellahouston medal awarded, 622—Degrees and pass lists, 488, 622, 724—Faulds Fellowships, 587—History of medicine prize, 587—Honorary degrees, 724—Medical curriculum, 658

University Grants Committee, 53—Total estimate, 608—Memorandum on clinical units in medical schools, 775
University of Ireland, the National, roll of honour, 234
University of La Plata, riot at, 725
University of Leeds, appeal, 613
University of Leyden, new buildings open to public, 885
University of Liége, proposed course of stomatology at, 725
University of Liverpool: Appeal, 446, 725—Degrees and pass lists, 456, 524—Diploma in public health, 102—School of Tropical Medicine, 524
University of London: Appointments, 63, 171, 315, 557, 854—Degrees and pass lists, 785—Examiners, 854 — Joel bequest, 275, 315 — Lectures, 422 — Matriculation passes, 387—Meeting of Senate, 63, 275, 422, 557, 854 — Military education, 488—M.S. degree, new branches, 524—Physiology, advanced lectures in, 658—Recognition of teachers, 63, 422, 854—Remuneration of professors and teachers, 275—Site offered, 754, 780, 808—Parliamentary questions, 808—University College, 488—University medal, 422—University studentship in physiology, 275—War memorial, 384
University of Louvain, reopening of, 557
University of Lyons: Appointments, 725
University of Manchester: Appeal, 549 - Chair of physiology, 203—Degrees and pass lists, 488
University of Oxford: Appointments, 203—Biochemistry professorship, 658—Degrees and pass lists, 171, 275, 854—Gifts to, 658—Greek compulsory no longer, 351—Honorary degrees, 854—Philip Francis Walker studentship, 854—Radcliffe travelling fellowship, 488—Regius chair of medicine, 344
University of St. Andrews: Degrees and pass lists, 34, 785—Appointments, 658—Honorary degrees, 785
University of Sheffield: Clinical demonstrations, 34
University of South Australia: Appointments, 27
University of Sydney: Roll of honour, 233
University of Toronto: Calendar, 44
University units: At St. Thomas's, 26—At University College Hospital, 26, 161—At London School of Tropical Medicine, 194—At St. Bartholomew's, 228
UNWIN, Stanley (editor): *The Work of V.A.D. London I during the War*, rev., 574
Ureter, constriction of (Miles H. Phillips), 540
Urethra, review of books on, 406, 541
Urethroscopic tube, 771
Urinary system and *Bacillus coli communis* (Herbert Evans), 438
Urine, puerperal suppression of (Robert Jardine and A. M. Kennedy), 767
Urology, review of books on, 225, 470
Utero-placental apoplexy. *See* Haemorrhage, accidental
Uterus, rupture of (Ford Anderson), 829
Uterus, spontaneous rupture of following pituitrin (A. W. Bourne), 829

V.

Vaccination and panel practitioners, 883
Vaccination, public, cost of (parliamentary question), 615
Vaccination against small-pox and enteric fever made compulsory in Madrid, 586
Vaccination statistics (parliamentary question), 306
Vaccination, value of (parliamentary question), 720
Vaccine, Friedmann's turtle, 94
Vaccine, tubercle (Nathan Raw), 538. (O)
Vaccines in gynaecology and obstetrics (Robert Robertson), 437
Vagasthenia (James A. W. Watts), 669. (O)—Correspondence on, 813
Vagina, rupture of (A. C. Palmer), 602
VAN BENEDEN of Liége, statue to, 781
VANGHETTI, Dr., awarded Riberi prize, 885
VAN SOMEREN, R.: Mode of quinine administration, 756
Varicella and herpes (Claude Wilson), 828
VAZIFDAR, N. J.: *Physiology of the Central Nervous System and Special Senses*, rev., 870
Venereal clinic, the needs of (leading article), 92—Legislation *re* professional secrecy for medical officers of, 691—Ministry of Health circular, 815
Venereal clinics in London, 414
Venereal disease (H. H. White), 469
Venereal Disease, National Council for Combating, annual meeting, 835
Venereal disease in the Portsmouth area (leading article), 680—Correction, 726—In the British army (parliamentary question), 751—In Scotland, treatment of, 752
Venereal disease, post-graduate course in, 55, 103, 315, 623. *See also* Post-graduate
Venereal disease, prevention of, 28, 61, 98, 128, 166, 241, 273, 311, 352, 623, 686, 725, 836, 837—Meeting at the Mansion House, 241—Deputation, 725—Letter from Society for Prevention of Venereal Disease to county councils, etc., 623—Report by A. Mearns Fraser, 686—Annual meeting of National Society for Combating, 835—Annual meeting of Society for Prevention of, 836
Venereal disease and prophylaxis amongst the Anzacs, 202
Venereal disease, review of books on, 190, 331, 638
Venereal disease and the State, 155—Policy of the Medical Women's Federation, 155
Venereal disease, tests of cure in, memorandum by Ministry of Health, 89—Leading article on, 92
Venereal disease treatment boards (parliamentary question), 414
Venereal disease, unqualified treatment of, 63
Venereal Diseases and their Treatment: How not to do it, 613
Venereal "Professor" sentenced (A. S. Eastburn), 384
Ventrifixation before the menopause (George Norman), 571
Ventilation and heating of tuberculosis institutions (Leonard Hill), 797
VERCO, Sir Joseph, 27
Vermin Repression Society. *See* Society
Veronal poisoning, case of, 691
VERRALL, Sir Jenner: Appreciation of Sir Robert Morant, 421
Veterinary Surgeons Act Amendment Bill (parliamentary question), 414, 844
VICKERMAN, Colonel P. S.: Eusol in subtertian malaria, 303
Vienna: Distress in, 29—Deficiency diseases in (leading article) 477—Medical literature for, 484, 516—Influenza made notifiable, 589—American medical men's donations to Food Fund, 619—Decline of population, 885
Village Centres Council: Increased donation from town of Southampton, 264
Village tuberculosis settlements. *See* Tuberculosis
VILVANDRÉ, G. E.: *X*-ray treatment of neoplasms, 215 (O)
VINCENT, Thomas Swale, appointed to University chair of physiology at Middlesex Hospital Medical School, 163
Viscera, solid, skiagraphy of, 511
Visceral analgesia in tabes, 480
Vision, relief, an unrecognized factor in, 412
Vision, review of books on, 502
Vital statistics for England and Wales, 163, 457, 752, 775, 802, 836, 874
Voluntary hospitals. *See* Hospitals
Volvulus of caecum, double obstruction (R. Eccles Smith), 289 (O)
Volvulus of the whole jejuno-ileum (B. P. Sabawala), 221
Volvulus of stomach (leading article), 548
Vulvo-vaginitis in a newborn infant (Margaret Rorke), 671

W.

WALDO, Dr.: Inquests in the City of London and Southwark, 451
Wales: Early care of mental cases in, 348—Medical services in, future provision of, 781, 809 — National Medical Schools, inaugural meeting, 616—Nursing organization in, 233 — Pathological department opened at Swansea, 722—Welsh Board of Health, 345, 809—Welsh Consultative Council's report, 781, 809—Welsh mobile laboratory, 27
WALKER, Kenneth: Sterility in the male, 10. (O)—Letter on, 349
WALKER, Norman, appointed Inspector of Anatomy for Scotland, 617
WALLACE, G. D. H., called to the Bar, 659
WALLACE, J. Sim.: *Child Welfare and the Teachings of certain Dentists, School Medical Officers, Medical Officers of Health, and other Medical Men*, rev., 607
WALLER, A. D.: Measurement of emotion, 259—Physiological cost of muscular work, 537. (O)
WALTON, George Lincoln: *Oscar Montague, Paranoiac*, rev., 471
WAPIER, Ph. (and P. ARMAND-DELILLE): *L'Ecole de Plein air et L'Ecole au Soleil*, rev., 154
War Emergency Fund. *See* Fund, Royal Medical Benevolent
War, end of. *See* Fee, notification
War methods in civil practice (Sir Anthony Bowlby), 86
War neuroses, 36
War pensions. *See* Pensions
War rewards, 723
WARD, E.: Cardiac massage in asphyxia neonatorum, 257—Familial form of acoustic tumour, 496. (O)
Ward, Rev. John, and medicine (Sir D'Arcy Power), 674
WARING, H. J. (and Sir Humphry ROLLESTON): Graduate education in the United States, 833
Warning, 316, 624
Water charges for car washing, 195
Water, cold, and antipyretic drugs, 206
Water dropwort. *See* Dropwort
WATERHOUSE, Rupert: Meningitis treated by intrathecal injections of the patient's blood serum, 45. (O)
Waterproofing, the discoverer of, 521
WATSON, Captain Allan, obituary notice of, 314
WATSON, Chalmers: Enteroptosis and associated conditions, 797
WATSON, C. R., obituary notice of, 239
WATSON, H. Ferguson: The mentally defective, 554
WATSON, John B.: *Psychology from the Standpoint of the Behaviorist*, rev., 771
WATT, Henry J.: *The Foundation of Music*, rev., 407
WATTS, James A. W.: Vagasthenia, 669. (O)
WAUGH, John, obituary notice of, 102
WEBB, G. Lowell: Circumcision, a barbarous and unnecessary mutilation, 620
WEBB, Helen: Treatment of mental disorder, 851

Week:

Académie de Médecine, 161
Aeroplane in medical investigation, 230
Allbutt, Sir Clifford, 779—Presentation portrait of, 876
American hospital in London, 779
American medical schools, 481
Annual dinner, 645
Annual meeting at Cambridge, 340, 410, 511, 551, 579, 612, 645, 681, 714, 840, 843
Ante-natal respiratory movements, 877
Anthrax infection by brushes, 25, 53
Army Medical Department, services of, 807
Arterial embolism, operation for, 805
Association of Surgeons of Great Britain and Ireland, 445, 714
Asylum medical service, improvements in the, 550
Atropine in pylorospasm and pyloric hypertrophy, 551
Atropine in sea-sickness, 23
Auxiliary R.A.M.C. Fund, 685
Baths of old London, 807
Biochemistry in the universities, 841
Birthday honours, 805
Bland-Sutton, Sir John, 780
Blind masseurs, 232
British honour for Professor Tuffier, 304
British Medical Association lecture, 551
British Medical Association, President for 1921, 551
British Science Guild, 195
Bronze medico-chirurgical instruments, 268
Calcutta School of Tropical Medicine, 550
Cambridge, chair of anatomy at, 780
Cambridge Natural Science Club, 163
Cancer and chrome ulceration, 122
Cancer of cervix rendered operable by radium therapy, 806
Cavell monument, 413
Census, the next, 842
Cerebro-spinal fever, treatment of, 750
Chadwick lectures and medals, 305
Circumlocution office of to-day, 513
Clinical teaching "elements" at work, 161, 228. *See also* Post-graduate
Cocoa butter, 446
Complement fixation test in syphilis, 877
Coroner on what the soldier said, 716
Cremation, progress of, 513
Dentists' registration, future of, 549
Diploma in medical radiology and electrology, 55
Diplomas, special, 303
Dogs' Bill in America, 512
Dublin Radium Institute, 550
Encephalitis, epidemic, virus of, 646
Eusol in subtertian malaria, 303
Federations of brain workers, 229
Fellowship of Medicine, 779
French army medical school, 55
French pharmacopoeia, additions to, 613
Friedmann's turtle vaccine, 94
Fundus of the eye after death, 878
Gastric pain, origin of, 162
Geneva Red Cross Congress, 377
Government policy as to municipal general hospitals, 612, 647
Greek science and modern science, 748
Hard hit, 303
Health surveys, 267
Hemeralopia, epidemic of, 480
Historical surgical instrument cases, 54
Home ambulance service, 716
Honorary degrees at the annual meeting, 840
Hospital survey, 684
Hospital units, 161
Hours of labour, 446
Human metabolism, recent work on, 877
Hygiene institute in Paris, 878
Hyperglycaemia in mental disorders, 193
Hyperpyrexial heat-stroke, nature and treatment of, 343
Hypothesis as to the organic basis of functional nervous disease, 231
Income tax and service gratuities, 479
Indian Medical Service, temporary commissions in, 93
Influenza, 163, 232, 267, 342—Experimental production of, 267
Influenza, vaccinal prophylaxis of, 23
Insanity, prevention and treatment of, 749
International good fellowship, 779
International Society of Surgery, 305
Intracarotid salvarsan injections, 162
Intramuscular injections of quinine, 25
Jameson, 779
Jenner Society, 842
Joel chair of physics, 194
Johns Hopkins University, first superintendent of, 232
League of Red Cross Societies, 267

Week (*continued*):
Leicester University College, 715
Leprosy problem in India, 749
Lethargic encephalitis, 193, 481, 512
Leukæmia, acute, 231
Liverpool University, 446
Logie, Dr., centenary of, 717
London School of Tropical Medicine, 54, 717
Lymphocyte, biology of the, 123
MacAlister, Sir John, dinner to, 447
Mackenzie Davidson Memorial Fund, 341
Mackenzie Davidson Memorial Lecture, 581
Magic and medicine, 612
Makins, Sir George, dinner to, 684
Manchester University, 549
Manicure infection, 376
Maudsley courses in medical psychology 376
Medical ambassadors to United States, 410
Medical endowments in America, 342
Medical inspection in secondary and continuation schools, 581
Medical inspection and treatment of school children, 481
Medical Insurance Agency, 842
Medical Register, 514, 841 — Change of address, 841
Medical Research Council, 447
Medical sickness assurance, 94
Medical societies, international organization of, 266
Medical Society of London, 447
Medical Students' Register, 581
Medical terms in the *New English Dictionary*, 683
Medicine in Bolshevist Russia, 54
Medicine and government, 52
Mercier, Charles, 342
Middlesex Hospital, 580
Military medicine at the Imperial War Museum, 841
Milk for children and mothers, 124
Milk, clean, 876
Milk, dried, and vitamines, 580
Milk sterilized by electricity, 682
Morrison of Peking, 781
Naval Medical Service, 304
Naval medicine at the Imperial War Museum, 807
Nerve lesions, voluntary movements in, 684
New Year honours, 26
No 14 General Hospital, 195
Notification fee and the end of the war, 344
Nyctalopia or hemeralopia, 514
Ophthalmological Congress, annual, 582
Ophthalmology and the public, 647
Ophthalmology, teaching of, 340
Optical instruments, 230
Osler, Sir William, 121—Oxford memorial to, 304, 374—At the Bodleian, 411—Memorial volumes, 614
Oxford, Regius chair of medicine at, 344
Pellagra in a refugee camp, 805
Pensioners, operations on, 482
Pensioners' records, 304
Pensions for senior surgeon commanders, R.N., 269
Peritonitis, treatment of, 376
Physical therapy in the navy, 683
Physiological action of intravenous injections, 375
Physiological study at the Naples zoological station, 268
Plant response, 412, 512, 716
Poliomyelitis, acute, the portal for, 343
Polymorphonuclear leucocytes, origin of 93
Poor Law infirmaries and clinical education, 92
Post-graduate courses, 715
Post-graduate course in venereal disease, 55
Post-graduate education in London, 580
Post-graduate teaching "elements," 161, 194, 228
Psychiatry, courses in, 268
Psychology and mental pathology, 805
Public opinion and preventive medicine, 646
Puerilism of war, 194
Quinine, price of, 124
Radiology, teaching of, 341
Radio-therapy in cancer of uterus, 480
Rarity, 374
Red Cross Societies, League of, 267
Regius Chair of Medicine at Oxford, 344
Relief vision, an unrecognized factor in, 412
Research Defence Society, 121
Research institute, proposed all India, 344
Retrograde absorption by the kidney, 878
Rewards for medical discovery, 26
Riviera, the, 24
Rockefeller benefactions, 24
Royal Academy, 645
St. Thomas's Hospital, 123
Salaries of medical officers of local authorities, 230
Sanatorium for merchant seamen, proposed, 229
Scandinavian medical journals, 55
Sections. *See* Annual Meeting
Week (*continued*):
Smoke abatement, 303
Stewart prize, 748
Syphilis, trifling with, 613
Territorial army, 192
Thoracoplasty in pulmonary tuberculosis, 717
Time for speech, 579
Toxicological investigation of acute alcoholism in man, 411
Tropical Diseases Bureau, 122
Tuberculosis, pulmonary, experimental production of, 162
Tumours, origin of, 53
Type cultures, national collection of, 682
Typhus fever in Poland, 122, 614
United States Army Medical Museum, 163
University Grants Committee, 53
University of Leeds, 613
University quarter for London, 780
University unit: At St. Thomas's, 26—At University College Hospital, 26
Van Beneden of Liége, 781
Visceral analgesia in tabes, 480
Water charges for car washing, 195
Welch, Professor, of Baltimore, 514
West London Medico-Chirurgical Society, 647
What the soldier said, 716
White man in West Africa, 411
Yellow fever, etiology of, 375

WEEKS, Courtenay C.: *The Scientific Authority for Total Abstinence. Part II: Alcohol in Relation to the Nervous System, with Special Reference to its Action on the Brain*, rev., 503
Weight, height, and longevity, 678
WEIN, Emanuel: *Feststellung und Behandlung der Tuberkulösen, Infektion mittels Antitoxischer Heilkörper*, rev., 16
Weir Mitchell treatment, review of books on, 367
WELCH, W. H. (of Baltimore), 70th birthday of, 514
Wellcome Bureau of Scientific Research, new address of, 525
WELLS, Major Norman Septimus, obituary notice of, 622
WELLS, Russell: Medical missions, 623—(and others) Ten thousand recruits with doubtful heart conditions, 730. (O)
Welsh mobile laboratory. *See* Laboratory
Welsh. *See* Wales
WELSH, Sibyl I. The nervous system and the endocrine glands, 769
WENCKEBACH, K. F. (and W FALTA): *Wiener Archiv für Innere Medizin*, rev., 574
WENDELL, Lehman: *Systematic Development of X-ray Plates and Films*, rev., 770
WERTHEIM Ernst, obituary notice of, 455
WEST, Samuel, obituary notice of, 385
WESTCOTT, Wynn, resignation of, 885
Wexford County, meeting of practitioners, 783
WHARRY, H. G.: Jamaica as a holiday resort, 590
What the soldier said, 716 *See also* Coroner
WHEELER, Sir W. I. de C.: Compression of lower brachial trunk by first dorsal rib, 519—Arthroplasty of knee-joint, 768
Whisky, importation of (parliamentary question), 650
Whitaker's Almanack for 1920, rev., 49
WHITE, Charles F. (and W. Herbert BROWN): *Atlas of the Primary and Cutaneous Lesions of Acquired Syphilis in the Male*, rev., 541
WHITE, H. H.: Brief review of venereal disease, 469
WHITE, S. E.: Sterility, 274—Early mental treatment and the rights of the subject, 689
WHITEHEAD, Major E. C.: Case of acute yellow atrophy of liver, 400
WHITELOCKE, R. H. Anglin: Appendicectomy by a new route, 211, 223. (O)
Whooping-cough, investigation into the periodicity of epidemics of by the periodogram (Matthew Young), 366
WIGNALL, Thomas H.: Poisoning by arseniuretted hydrogen gas, 826. (O)
WILKINSON, A. G., 85th birthday of and presentation to, 691
WILKINSON, W. Camac: Preventive inoculation against influenza, 309—Proposed memorial to Sir Victor Horsley, 350
WILKS, Sir Samuel, story of (a soft answer), 72—More stories, 104
WILLCOX, W. H.: Mode of quinine administration, 28, 168—Treatment and management of diseases due to deficiency of diet, scurvy and beri-beri, 73. (O) Typhus and relapsing fever in Mesopotamia and Northern Persia, 222—Nature, prevention, and treatment of heat hyperpyrexia, 392 (O)
WILLEY, C. H.: Etiology of diverticulitis, 603. (O)
WILLIAMS, D. J., obituary notice of, 350
WILLIAMS, Evan, obituary notice of, 524
WILLIAMS, H. Lloyd, appointed J.P. for county of Middlesex, 785
WILLIAMS, Llewelyn, appointed medical member of the Welsh Board of Health, 785
WILLIAMS, Robert Morris, obituary notice of, 387
WILLIAMS, R. Stenhouse: Bacteriology of milk, 365—Production of clean milk, 876
WILLIAMS, W. J., obituary notice of, 386
WILLIAMSON, D. J.: Village tuberculosis settlements, 552
WILLIAMSON, Herbert: Blood transfusion before operation, 603
WILLIAMSON, R. T.: Dietetic treatment of diabetes mellitus, 399. (O)
WILLOT, Joseph, bust erected at Roubaix, 704
WILLOUGHBY DE BROKE, Lord: Prevention of venereal disease, 61, 623
WILLS, E. F.: Value of legumes in beri-beri, 816
WILSON, Claude: Herpes and varicella, 828
WILSON, G. Haswell: Direct cultivation of tubercle bacilli from tissues, 146. (O)
WILSON, James C. (and Nathaniel B. POTTER): *Internal Medicine: a Work for Practising Physicians on Diagnosis and Treatment*, rev., 676
WILSON, R. M. (and W. M. T. WILSON): *War Diseases and Pensions*, rev., 504
WILSON, W. H.: Appreciation of Alexander Ferguson, 622
WILSON-SMITH, W. A.: Arsenic in lethargic encephalitis, 655
WINDSOR, C. W., appointed J.P. for County of Cambridge, 885
Wines, light and heavy prices, 590
Women and Children Employment Bill, 844
Women, employment of before and after childbirth (parliamentary question), 879
Women Sanitary Inspectors' Association. *See* Association
WOOD, Percival: *Moses the Founder of Preventive Medicine*, rev., 607
WOOD, W. Q.: *Textbook of Surgery*, rev., 799
WOODCOCK, H. M.: Ticks and relapsing fever, 310
WOODS, Hugh: Rare accidents presumed due to negligence, 554
Worcestershire, whole-time medical appointments in, 880
Worcestershire County Council. *See* Council
Workmen's Compensation Act, medical fees under (parliamentary question), 879
WORSTER-DROUGHT, C., exhibits series of cases, 605
WRIGHT, A. J.: Treatment of the running ear, 382
WRIGHT, Garnett: Diverticulitis, 86
WRIGHT, George Arthur, obituary notice of, 556
WRIGHT, J. Aldren: Treatment of psoriasis, 756
WÜRDEMANN: Fundus of the eye after death, 878
WYLIE, James, his action for slander, 454
WYNN, W. H.: Protective inoculation against influenza, 254. (O)

X.

X-ray prints, exhibition of, 138
X-ray treatment of acne vulgaris, 700. (O)
X-ray treatment of neoplasms, 215. (O)
X rays and chrysophanic acid in tinea, 219. (O)
X rays as immunity-raising agents before and after operation for cancer, 793. (O)
X rays, review of books on, 153

Y.

Yearbook of Pharmacy, rev., 226
Yellow fever. *See* Fever
YELLOWLEES, Henry: Acute suffocative catarrh, 257
YOUNG, Archibald: Intussusception of the appendix, 365—Ischaemic contracture of forearm, 636
YOUNG, Matthew: Investigation into the periodicity of epidemics of whooping-cough by means of the periodogram, 366
YOUNG, Ruth: *Maternity and Child Welfare*, 483

Z.

ZEILER, Karl: *Die Geschlechtskrankheiten. Ihr Wesen, Ihre Erkennung und Behandlung*, rev., 870
ZUNTZ and LOEWY: *Lehrbuch der Physiologie des Menschen*, rev., 154
Zurich, increase of non-alcoholic restaurants in, 443

For List of Illustrations see back of Title.

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An Address
ON
GUNSHOT FRACTURE OF THE FEMUR.

DELIVERED AT A MEETING OF THE AMERICAN COLLEGE OF SURGEONS IN NEW YORK, OCTOBER 8TH, 1919.

BY

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FRACTURE of the femur by bullets or shell fragments is one of the most dangerous injuries of war, but it must be realized at once that the danger is proportionate to the extent and nature of the injury of the soft tissues even more than to the extent of the bone lesion. Thus, it is well known that a spent bullet which glances off the femur and just breaks it may cause a minute entry and exit wound and a fracture which is much more like a simple fracture than a compound one. On the other hand, a large shell fragment may tear away the greater part of the hamstring muscles and the skin covering them, and may inflict so severe an injury that even if the femur is not fractured, the lesion of the soft parts alone may well prove fatal.

In the South African war of 1899–1902 it was the former class of fracture which predominated, for not only were there very few high explosive shells used, but the rifle bullets were generally fired at a range of over 1,000 yards, and were of a shape which caused the minimum of injury to the soft tissues and the very smallest wounds of entrance and exit. It thus happened that the majority of cases did well, and that the experience of fracture of the femur in the South African war was of but little help in 1914, although it did demonstrate very clearly the value of the "Hodgen" splint and its superiority to the time-honoured "long Liston."

In the recent war, on the other hand, fractures of the femur were generally inflicted either by wedge-like bullets fired at quite short range from machine guns or rifles, or else by fragments of high explosive shells, which were often very large, being parts of shells which themselves weighed from sixty to two hundred pounds or more. Extensive tearing of the muscles was therefore the rule, and in many cases the patient had other wounds in addition. In the early days of the war shrapnel shell was extensively used by the Germans, and it was much used by both the British and the French throughout the whole war. The lower velocity of its round bullets caused it to produce much less injury to bone and muscle than the rifle bullet fired at short range or than the fragments of high explosive shell.

Another very important factor to be considered in estimating the danger of fracture of the femur is the length of time that is often liable to elapse before the patient can be adequately treated. If in France a man were wounded in our own trenches or in billets there was very little delay, but, on the other hand, if he was wounded in an attack on the enemy's position it was often impossible to attempt to move him till nightfall, and he could not, of course, help himself to get to an aid post. The result was that before the patient could be treated he was often weakened by continued bleeding, by hunger and thirst, or by exposure to cold through lying out in mud and water, or through being soaked by heavy rain.

Conditions such as these will always cause a very high rate of mortality, whatever treatment is adopted.

TREATMENT.

The treatment of these fractures falls naturally into two divisions—treatment at the front and treatment at the general hospitals.

I. TREATMENT AT THE FRONT.

At the beginning of the war the splints supplied at the British front were very inefficient as well as very few, for the only splints available were long wooden splints of the Liston type, but both too thin and too narrow to be satisfactory. A rifle made a better splint. Within a few months I was able to obtain supplies of stouter splints made with a metal bracket 8 in. long so as to permit access to the wound, and these proved very serviceable, and were employed for nearly a year and a half at the aid posts and field ambulances. In 1915 Lieut.-Colonel Max Page devised a splint made of flexible metal and of the "Thomas" type, and by the end of the same year Sir Robert Jones's advocacy of the "Thomas knee splint" had resulted in its employment in many units. At about the same time Sir Cuthbert Wallace, in conjunction with Colonels Richards and Frankau, perfected the now well known "stretcher-suspension-bar," which enabled the patient to be carried on a stretcher with the lower extremity suspended. The use of the Thomas splint was soon adopted throughout the entire front, and was demonstrated to medical officers by the consulting surgeons in every field ambulance in the British army. The application of what came to be called the "Thomas outfit"—that is, Thomas knee splint and suspension bar—was also taught everywhere to all the field ambulance orderlies and regimental stretcher-bearers; and it was further ordered, on the suggestion of Captain Kenneth Walker, that when a man with a fractured femur was found on the battlefield the splint was always to be applied before the trousers were cut open or the wound dressed, and that the boot should also be left on the foot. The object in view was to immobilize the fracture before the limb was much handled, and also to apply the splint with as little loss of time as possible. A back splint or a kettle-holder splint was often applied in addition.

When the use of the "Thomas outfit" became general the transport of the patient to the casualty clearing station was very greatly simplified, for, as soon as the limb was fixed in extension and slung, pain was either altogether prevented or reduced to a minimum, bleeding was soon checked and the steadying of the fragments effectually prevented further injury to the soft tissues and the spread of sepsis. The consequence was that patients arrived in infinitely better condition than previously, and shock was no longer so serious. The value of this early splinting of fractures was unexpectedly demonstrated when, in May, 1918, several French divisions came to the Kemmel area. Their journey had been hurried, and efficient splints had not been provided, so that when fighting began many patients arrived in British casualty clearing stations with fractures of all kinds unsplinted. The condition of these men was an object lesson to those who had not been at the front in the earlier days of the war, for evidence of shock and loss of blood predominated in them, and

many died, whilst the cases arriving at the same casualty clearing stations from the British field ambulances were in good condition. The necessary splints were at once provided.

The method I have sketched of applying first aid treatment to cases of fractured femur was not materially altered in the British army during the last two and a half years of the war. It is of course very probable that further improvements will be developed, but it appeared to us when hostilities came to an end that for the time being we had developed a very efficient method of treating these fractures on the battlefield.

We found that the best means of applying traction on the field was by steel callipers fixed to the sole of the boot below the instep. In the absence of these a steel skewer may be passed through the boot leather, but has the disadvantage of spoiling the boot. Either a clove hitch bandage or a so-called "surgical spat" was liable to cause too much pressure on the thin skin of the dorsum of the foot and consequent sloughing if left on for long.

On arrival at the casualty clearing station the routine treatment was to anaesthetize the patient, then take off the splint and dressings and thoroughly remove with knife and forceps all damaged tissues and foreign bodies. Before this could be done it was often necessary to employ measures to combat shock or loss of blood, and in most cases gas and oxygen was the anaesthetic of choice.

After the operation was completed the Thomas splint was again applied, but this time the extension was fixed to the skin by strapping or glue. Then, as soon as the patient's condition permitted, he was removed to the ambulance train *en route* for the general hospital area.

Primary Amputation.

In a large number of cases of fracture of the femur primary amputation is absolutely necessary, and should be performed as soon as the state of the patient permits. In the latter half of the war the employment of improved methods of transport and of resuscitation enabled amputation to be performed on many more patients than in 1914–15.

The conditions which commonly necessitate early amputation may be briefly summed up as follows:

1. Complete smashing of a large area of bone.
2. Extensive comminution of the lower articular end of the femur.
3. Laceration of the femoral vessels.
4. Extensive destruction of muscles or skin.

It must be recognized that primary amputation for fracture of the femur is attended with a very much higher death-rate than is amputation in the thigh for injuries of leg, and also that the higher up the limb is removed the greater is the mortality. Primary amputation at the hip-joint is so uniformly fatal that it had better not be performed at all.

II. TREATMENT AT THE GENERAL HOSPITALS.

The first duty of the general hospital surgeons was to operate on those cases which had not been operated upon at the front; and for a short time at the end of March, 1918, when all the casualty clearing stations of the Third and Fifth Armies had been forced to retire, the bulk of the operating work fell to the lot of the general hospitals. If, however, thorough excision had been satisfactorily performed at the front in good time, as was usually the case, then the patient on arrival was put to bed and allowed to remain undisturbed for a day or two, to recover from all he had gone through. During this period many patients improved very rapidly in every way.

In many cases, after this period of rest, another apparatus was substituted for the Thomas splint, and in the putting up of these fractures an immense amount of ingenuity and skill was developed throughout the whole of the bases in France. The names of Major Sinclair and Major Pearson must be given a special place in this relation, because they were the earliest and most ingenious of the pioneers, but many other surgeons became equally deserving of distinction subsequently.

The detail of the methods employed have been so well described and illustrated by various surgeons that it would serve no good purpose if I were to follow in their footsteps. I will therefore only attempt to indicate the general principles which were common to most centres, merely premising that the greatest benefit and progress resulted when, at the end of 1917, certain hospitals in every area were specially selected and equipped for the treatment of fractures of the femur, and when the surgeons of these hospitals had acquired experience in the work.

PRINCIPLES OF TREATMENT.

1. The first general principle which was universally adopted was that the apparatus employed should be a skeleton metal splint, and that this should be used so as to enable traction to be applied either directly downwards or else in various degrees of abduction or flexion. This was the essential foundation upon which all else was based.

2. The direction of the traction and the amount of flexion or abduction required were guided throughout by frequent radiograms. These were always taken by a movable *x*-ray apparatus brought to the side of the bed, and by the aid of these the position of the fragments was altered, so as to obtain accurate apposition. Without the frequent use at the bedside of *x* rays it is not possible to obtain uniformly good results.

3. The length of the limb was at first measured daily and afterwards less frequently, and it was found most useful to keep a "chart of shortening" (or lengthening) over the patient's bed. It became the custom to apply extension until the injured limb was definitely longer than its fellow, as it was found that this gave the best end results. It is most important to bear in mind that even when the main fragments of bone are separated by an interval of as much as one or two inches the gap can be completely filled by new bone.

4. "Fixed" extension proved to be not so good as "continuous" extension. The traction can be employed either by fixing the foot, and then lifting the end of the bed and letting the weight of the patient act as the extending agent, or else by applying weight traction. On the whole, the use of the patient's own body weight was the method most in favour.

5. Movements of the knee-joint were begun early, and slight flexion of the knee was always preferred to traction on the fully extended limb. The early experience of the war had shown us that unless special precautions were taken a permanently partially stiff knee-joint was extremely common. This might be due to (*a*) mild sepsis; (*b*) fracture near the articulation; (*c*) scarring, shrinkage, and adhesion of muscles, tendons, and skin. Captain Watkin Williams devised a very simple metal apparatus, which was attached to the main splint, and enabled the knee to be freely moved or fixed at any angle of flexion. Colonel Besley, of the Chicago unit, gave great help by the callipers which he devised. These were fixed above the condyles of the femur, and were especially valuable for cases of fracture of the lower third of the femur, for their use completely overcame the flexion so common in these cases, and they also enabled the knee-joint to be freely moved without disturbing the traction on the femur. Many surgeons employed "calliper extension" for all their cases. It should be noted that if callipers are employed the following precautions are necessary: (*a*) rigorous asepsis; (*b*) avoidance of the synovial membrane; (*c*) avoidance of the thin articular bone of the condyles by fixing the callipers on the denser bone at the level of the adductor tubercle; (*d*) the use of any simple method for preventing the too deep penetration of the bone by the points of the callipers.

6. For fractures about the upper third and the neck the patient was placed either upon the hammock-like swing cradle invented and described by Major Sinclair, or else upon the special segmented mattress designed by Major Pearson. This latter was adopted late in 1918 by the Army Medical Department for the treatment of all cases of fracture of the femur under treatment in England, and has been fully figured and described by Major Pearson in his book *Fractured Femurs* (Pearson and Drummond, 1919).

7. When union was sufficiently advanced it was the custom to get patients out of bed while maintaining the length of the limb by the application of "walking calliper splints" fixed to the heel of the boot. If these were employed the use of the limb accelerated the formation of callus, but if they were not provided many limbs yielded and became bowed in attempts to walk.

8. The treatment of the wounds was on general principles, but in the year 1918 very great benefit resulted from early "delayed primary suture" or from "secondary suture." Cases so treated showed a more rapid union of the fracture and a great shortening of the period of pyrexia. They also were much less liable to late necrosis of fragments and to secondary abscess. The natural result was a decreased mortality in sutured cases as compared to those unsutured and a great diminution in the amputation rate. In cases which could not be sutured the period of suppuration was often shortened by the employment of Carrel's methods.

9. The question of the removal of bone was not entirely settled when the war ended. There was no doubt of the advisability of removing badly smashed fragments which had been completely separated. But, while most surgeons did not advocate the removal of more than this, some operators followed the advice of Leriche and practised subperiosteal removal of many of the partially detached fragments also. There seems no doubt that, on the one hand, the removal of all fragments which might necrose hastens the healing of the wound, whilst, on the other hand, this removal delays the union of the fracture, and, in the opinion of some very competent observers, has been responsible for permanent non-union in not a few instances.

RESULTS.

In the year 1917 a report by Lieut.-Colonel Max Page was read at a meeting of the Inter-Allied Conference in Paris. It was founded on an inquiry he had been commissioned to make in England as to the results of fracture of the femur; the report made it evident that in many cases the results were very unsatisfactory. A large percentage of the patients were suffering from one or more of the following conditions:

(*a*) Shortening of the limb of more than one inch, and sometimes of two or three inches.
(*b*) Union of the fragments in bad position.
(*c*) Stiffness of the knee-joint.
(*d*) Sinuses.

In a smaller number of cases there was stiffness of the hip-joint, necrosis of large fragments, or imperfect union. A large proportion of the patients walked very badly.

These results made it evident that the methods of surgical treatment and the conditions for the hospitalization of patients in 1914, 1915, and 1916 were not satisfactory, although before this inquiry made early in 1917 many improvements in splints had already been adopted in France.

The previous conditions and methods of treatment may be very briefly described. In the years 1914, 1915, and 1916 it had been necessary to send all patients to England as early as possible, owing to the fact that there was not, at the time, sufficient accommodation in France for the large numbers of the wounded; there is, however, no doubt that the journey was bad for the patients.

During the earlier part of the same period the splints most commonly employed, both in France and England, were long wooden splints of the type known in England as "Liston's." Towards the end of 1915 skeleton metal splints began to be used in France, and during the year 1916 the "Thomas" splint came into universal use at the casualty clearing stations. During this year also the "stretcher-suspension-bar" for use with the Thomas splint (so long as the patient remained on his stretcher) became a part of the regular equipment.

It was during the battle of the Somme in 1916 that, for the first time during heavy fighting, both these appliances were supplied to the field ambulances (of the Fourth and Fifth Armies). Subsequently both were sent up to the regimental aid posts of all armies, and were commonly applied as soon as the stretcher-bearers found the wounded man.

During the year 1917 the patients at the bases in France were generally treated by skeleton metal splints and extension by the methods demonstrated to the Paris Conference by Major Sinclair, but it became evident that better results could be obtained, and this object was achieved in 1918 by retaining patients in France as long as possible before the journey to England, and by the creation of special hospitals with specially trained staffs of surgeons and nurses. Special hospitals for fractured femurs were created in June, 1918, in England, and the effect of these various measures was that many lives and limbs were saved and that the limbs saved have shown very much less permanent disability than formerly.

Mortality.

The mortality at the front in the early days of the war cannot be directly compared with the mortality at the front in the year 1918, because the conditions were totally different. In the latter year and in 1917 all the worst cases were retained in the casualty clearing stations, and many died there, while in 1914 and 1915, whenever there was heavy fighting, practically all patients, however bad their condition, were at once sent to the base hospitals by ambulance trains, because the casualty clearing stations were far too few and too small to accommodate them; very large numbers of patients merely passed through these units on their way to the train. Yet, even then, it was found that not less than 16 per cent. of 1,000 consecutive cases died at the front, and it was estimated that the total mortality in France was at least 40 per cent., exclusive of those who subsequently died in England, so that the death rate was altogether not less than 40 to 50 per cent.

These figures are, however, rather misleading, for all cases of fractured femur are included in them, and amongst these not less than 20 or 30 per cent. had either such serious local complications as injury to the main vessels, extensive comminution into a joint, or widespread laceration and destruction of large masses of muscle, whilst many other patients had multiple wounds involving other limbs or the viscera of the thorax or abdomen. It is not always possible to distinguish between all these conditions, and it must be understood that the figures here given include all patients in whom the femur was fractured, whatever complications there might have been.

It has been found impossible to ascertain the results in all the field ambulances and casualty clearing stations in 1918 because of the difficulties encountered in the retreat of March and April, but sufficient records have been obtained to enable satisfactory conclusions to be drawn. The total mortality in the year 1918 may be estimated from the following figures:

I. *At the Front.*

Of 3,141 cases 550 died—that is, 17.5 per cent.

Of these cases approximately 21 per cent. were treated by amputation.

The mortality of the amputated cases was about 33 per cent. These are included in the total of 550 deaths recorded above.

It was estimated that in between 20 and 30 per cent. of the total number of 3,141, there were multiple wounds or such other serious complications as have been alluded to above. The mortality was very much higher in this class than in the remaining 70 cent.

II. *At the Base Hospitals.*

During the year 1918 there were treated in the general hospitals at the bases in France 5,025 patients; of these, 547 died, = 10.8 per cent.

Of these 5,025 cases, 513 were treated by amputation = 10.2 per cent.

The mortality of the amputated cases was about 33 per cent. All these are included in the figure of 547 given above.

III. *In England.*

Inquiry in England shows that the mortality in the special hospitals more recently created was very low, and generally 1 or 2 per cent. The reasons were, first, that in 1918 the majority of all the cases were kept in France till union had occurred and the wounds had healed; and second, that, even in times of stress, the worst cases were always retained in the special hospitals in France. For the same reasons amputations in England were few.

From a consideration of the above figures it may be concluded that during the year 1918 the total mortality of all cases of fracture of the femur (I) at the front, (II) at base hospitals in France, and (III) in England, amounted to, approximately, 30 per cent.

It must, however, be again pointed out that a very large proportion of the deaths occurred in men who had other serious injuries, and there is no doubt that in not a few of these death was not due to the fracture of the femur but to wounds of the viscera or to the shock caused by multiple injuries. My own impression is that the mortality of uncomplicated fractures of the femur due to "gunshot" wounds and treated throughout by the most modern

methods is not more than 15 to 20 per cent., and this conclusion has been reached after an examination of many statistics.

Amputations.

A very large number of the deaths followed amputation, and about 30 per cent. of all the patients with fracture of the femur lost the limb, either by primary or secondary amputation. It will be noted also that in one-third of all the amputations the operation failed to save life.

At the front the most common reason for amputation was that the extent and severity of the injury rendered it impossible to save the limb. In other cases laceration of the main vessels was the reason. In many cases the operation was performed for gas gangrene. Many lives were saved by the employment of blood transfusion and by the use of gas and oxygen as an anaesthetic.

At the base hospitals the presence of gas gangrene was almost as often the cause of amputation as at the front, but in a good many cases the development at a later stage of intractable sepsis called for the removal of the limb. It must, however, be remembered that in March and April, 1918, several hundred cases had to be sent to the base for operation which would ordinarily have been performed in the casualty clearing stations.

The following figures of one general hospital may be taken as examples. Out of 72 amputations gas gangrene caused 24; acute sepsis, 29; dry gangrene, 3; secondary haemorrhage, 9; osteomyelitis, etc., 6.

Final Results.

The final results obtained in the limbs that were saved show a very great improvement on those of the early part of the war. They may be briefly summarized as follows:

1. *Shortening.*

The methods of treatment of 1918 guarantee that unless there has been very extensive loss of bone *no shortening need occur.* It has been shown that even when one or two inches of the femur have been destroyed the gap can be filled by new bone, and that consequently there is no objection to maintaining the fractured ends in full extension.

It had formerly been the practice of some surgeons to allow the separated fragments to come together so as to promote union, but it is certain that this should not, in the future, be a regular practice.

Practical experience has also shown that it is more difficult to obtain a full-length limb in cases of simple fracture, such as occur commonly in civil practice, for the uninjured muscles offer far greater resistance than those in a limb wounded by shell or bullet, and more extension is consequently required. The amount of shortening following gunshot fractures is shown by the following figures to have steadily decreased in each year of the war; for the New Zealand figures we are indebted to Major Stout, N.Z.M.C.; they include every case of fractured femur in the New Zealand Corps:

New Zealand Figures.

1916	...	54 cases; average shortening	= 1.345 in.
1917	...	116 cases; " "	= 0.957 in.
1918	...	90 cases; " "	= 0.25 in.

Two Special British General Hospitals in France, 1918.

(*a*) 334 cases; average shortening = 0.2 in.
(*b*) 60 cases; average shortening = 0.2 in. Of these 60, 36 had no shortening.

A Special Hospital in England, 1918.

Major Pearson, S.A.M.C., has supplied the following figures:

Number of cases	...	...	...	...	68
No shortening in	...	...	...	...	39
Average shortening of the remaining 29 cases				=	0.5 in.

Other hospitals show similar results, and it will be seen that the majority of the patients recovered without any shortening, and that only in about 5 per cent. of all cases was there more than one inch of shortening. Thus, of the 90 New Zealand cases in 1918, only two had more than an inch of shortening, and both of these patients had lost a good deal of bone.

The records of the various special hospitals necessarily vary somewhat, but the figures quoted are sufficient to prove that the previous difficulties in obtaining limbs of good length after gunshot fractures of the femur have been completely overcome, and that equally good results should be generally obtained in civilian practice as well as in war.

2. *Malposition.*

The commonest displacement was a falling back of the lower fragment. The difficulties of correcting malposition almost disappeared in France as soon as a full length limb could be secured. A small percentage of the fractures near the knee and the hip recovered with some displacement remaining, but at least 80 per cent. of the whole of the cases recovered with good position.

In *fractures of the shaft* good position can practically always be secured, but it is most important thoroughly to support the bone at the site of fracture so that the natural anterior curve of the femur is either very fully maintained or even slightly exaggerated.

3. *Stiffness of Knee-joint.*

Major Pearson reports that, of 68 cases, 55 had a range of knee flexion over 90 degrees; 10 had a range of flexion of 60 to 90 degrees; and 3 had a range of flexion of 30 to 60 degrees. None had less than 30 degrees of movement at the knee.

Of the New Zealand cases Major Stout reports that the average range of flexion of the knee over the whole series was 43 degrees.

Many other hospitals showed similar results, and it is evident that the number of cases in which the knee was left permanently stiff was greatly diminished. There is no doubt that if suitable precautions are taken during treatment stiff knees in cases of fracture in the shaft of the femur should be very few.

4. *Stiffness of the Hip-joint.*

This has not been a frequent complication, and it should never occur except in cases where the fracture involves either the neck of the bone or the trochanters.

5. *Stiffness of Ankle-joint and Toes.*

This can always be avoided if care is taken not to keep the foot cramped by bandages, and to allow and encourage daily movement at the joints.

6. *Sinuses and Necrosis.*

Sinuses were seldom met with in the absence of necrosis; as it became the custom to remove sequestra earlier than in former years, the total number of patients with sinuses was greatly diminished.

7. *Non-union.*

This was decidedly rare, and did not occur in more than about 1 per cent. of the cases retained in France.

8. *Nerve Injuries.*

These were much more common than was generally appreciated. Out of a total of 297 cases of fractured femur observed by Major Stout, important nerve injuries were found in 12 per cent.—that is, in 36 patients. The injured nerves were—the sciatic in 13 cases; the internal popliteal in 3; and the external popliteal in 20.

THE parasite *Filaria conjunctivae* has for its normal host the horse and ass, but occasionally, though rarely, it has been found in man. Forbes has now published, in the *Journal of the Royal Army Medical Corps*, two cases, apparently the same as he reported to the Society of Tropical Medicine in October, 1918. In his first case a small tumour was found firmly embedded in the subcutaneous tissue overlying the head of the radius and the sheath of the supinator longus muscle; in the other a small tense cystic swelling, not adherent to the skin, was present on the right side of the nose just below the right lacrymal sac. A male adult worm was found in the first, an immature female in the second. At first these tumours were supposed to be due to *Onchocerca volvulus*, a parasite which gives rise to such lesions on the West Coast of Africa, but when the worms were submitted to Dr. Leiper he decided that they were examples of *F. conjunctivae* (Addario). This would appear to be the first recorded instance of the male worm being found. No embryonic filariae were found in the peripheral blood, which was examined both by day and night. The old error of considering *Stegomyia fasciata* an intermediate host of *F. bancrofti* is perpetuated in Forbes's paper. The paper is illustrated, and the facts recorded may lead to the discovery of other examples.

Remarks
ON
SOME CLINICAL TYPES OF ABDOMINAL TUBERCULOSIS.*

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MUCH has been written on the subject of tuberculous peritonitis, and the limitations of the usefulness of surgical interference in the condition are well known. It is rather with the accidents or complications which arise in connexion with abdominal tuberculosis that surgery finds itself concerned.

It has been established by clinical experience that tuberculous peritonitis associated with massive exudation is favourably influenced by simple evacuation of the fluid; this drainage of the inflammatory area being followed by a reaction which arrests if it does not cure the progress of the disease. Occasionally—very occasionally I think—in the course of this operation a primary focus of visceral disease is found and perhaps removed. This fortunate event has never happened to me, although I make it a practice to look for any obvious visceral disease in the abdomen and the pelvis. Of course, the bowel and mesentery can hardly be searched with any pretence to completeness. Clinical experience goes to show that the widespread exudative type of peritoneal infection is not commonly secondary to lesions of the bowel, mesentery, or tubes, at any rate not to gross disease in these situations; the probability is that it is in most cases primarily a blood-borne serous infection.

The Ileum.

The lower end of the ileum is the commonest site for the disease in the alimentary canal. Here the primary site is mucous, and necrosis and ulceration of the mucous membrane follow. Cases do not come to the notice of surgeons in the early stages of this type of the disease, and I should like confirmation or otherwise of the view that it is not often widespread; in other words, that tuberculous ulceration of the ileum usually concerns a small length of the bowel only, that it is a local disease, and rarely takes the form of a widespread florid infection.

The disease proceeds towards the peritoneal coat of the ileum, and a local tuberculous peritonitis results. Acute perforation is undoubtedly rare; I have met with one such case in a child of 4 years, admitted to hospital with acute peritoneal infection, in whom an ulcer in the ileum close to the caecum had perforated. It was associated with other ulcers in the ileum which *post-mortem* examination showed to be tuberculous.

The common event is a chronic penetration of the bowel wall by the disease, and following this a matting together of bowel surfaces occurs, which may be first revealed by obstruction.

The two following cases illustrate two alternative methods of dealing with the condition.

CASE I.—*Obstruction of Ileum: Lateral Anastomosis.*

A male patient, aged 15, was seized with acute general colicky pains on March 29th, 1911. He did not admit any symptoms of abdominal disease before this date. He vomited frequently during the night of onset, and these two symptoms—pain and vomiting—continued for three days until he was brought to hospital. He then had all the signs of acute intestinal obstruction, distended coils of bowel were plainly visible about the central part of the abdomen, the flanks being empty.

The abdomen was opened at the edge of the right rectus; distended ileum was traced to a matted mass of bowel covered with tuberculous deposit; the ileum beyond this mass was collapsed. A simple lateral anastomosis was made between bowel proximal and distal to the mass.

The further clinical progress was satisfactory, the temperature was apyrexic after the fourth day. The bowels acted naturally forty-eight hours after the operation.

This method simply avoids the disease and deals with the complication. A more direct way of dealing with both is illustrated by the following case.

CASE II.—*Obstruction of Ileum: Excision of Mass of Tuberculous Bowel.*

A female patient, aged 65, had had an umbilical hernia for eighteen years, and six years previously had had an operation for this. A week before admission to hospital she had an attack of acute pain in the night and vomited. The day following the bowels acted loosely four times. She did not vomit subsequently, but was nauseated. The bowels continued to act twice a day until the day of admission; on this day they did not act. A large ventral hernia was present in the situation of the operation scar. The part of this tumour to the right of the middle line was tense and tender, that to the left was soft and reducible.

An operation was performed on the day of admission. There were two distinct sacs, one on either side of the middle line: the small intestine occupying the left sac was healthy and reducible; the right sac was occupied by a matted mass of small bowel covered by tuberculous deposit. The sac wall was also infected. The whole mass was drawn forwards and removed between clamps. The intestinal ends were closed and invaginated and a lateral anastomosis performed. The hernial openings were repaired. This was a case of limited tuberculous ileal disease with obstruction in a hernial sac; there was no strangulation at the neck of the hernial sac.

The bowels acted naturally in thirty hours. Subsequently for a month she had some irregular pyrexia but her general condition remained good. The mass removed consisted of 2 ft. of small intestine, covered with tuberculous deposit, in part in the form of discrete tubercles but for the most part patches of coalesced tubercles matting the coils.

There was a mild degree of infection in the abdominal wound. Two months later an abscess formed under the scar which took eight weeks to heal. With this exception her recovery was satisfactory.

I do not think any law can be laid down as to whether exclusion or resection should be preferred in these cases of local ileal tuberculosis with obstruction, but obviously resection has great advantages over exclusion, in that it deals radically with the disease. The extent of bowel involved, the ease with which the mass can be isolated, will be guiding factors. The isolation of a mass which is not only matted by tuberculous disease but is also adherent to more or less distant coils is a precarious process. It is well known that separation of adhesions in a tuberculous abdomen is very liable to be followed by faecal fistula.

Caecum and Large Bowel.

The next most common seat of bowel tuberculosis is the caecum. Here, and at the other extremity of the colon, its pathological anatomy is different from the type in the ileum. Usually massive tumours are built up, the caecal wall becomes greatly thickened and infiltrated, and following, and in consequence of, this infiltration stenosis of the bowel lumen results.

Three cases, two of the caecum and one of the sigmoid colon, illustrate this type.

CASE III.—*Tuberculosis of Caecum and Adjacent Parts of Small and Large Bowel: Section of Mass: Colostomy: Death from Pulmonary Phthisis.*

A female patient, aged 36, was admitted to hospital complaining of pain in the right side of the abdomen. A tender swelling about the size of a kidney was to be felt in the right iliac region. She had a rigor on the day of admission. The pain had been present for three months, and was intermittent and associated with constipation. Two days after admission she had a severe attack of diarrhoea, the temperature rising to 102.°

On the fourth day the abdomen was opened and a mass exposed which involved the caecum, adjacent ascending colon, and six inches of the ileum. The whole mass was removed between clamps on the ileum and on the hepatic flexure of the colon and Paul's tubes fixed in each end of the gut. There was a good deal of shock, but she progressed fairly well, and a fortnight later an enterotome was fixed to break down the spur preparatory to closure.

The mass removed was tuberculous; there was extensive ulceration in the region of the ileo-caecal valve and terminal ileum, and of the caecum and about four inches of the ascending colon; there were also many tuberculous glands in the mesentery in the angle between ileum and caecum.

The operation was done on August 30th; on October 9th the artificial anus was closed under local anaesthesia, and the bowels acted through the natural channels next day. By this time, however, phthisis had been demonstrated in the left lung, and her general condition was bad. She died eighteen days later. *Post mortem* a large cavity surrounded by necrotic lung was found on the left side.

This operation of excision is severe, and in the presence of acute obstruction probably never advisable—certainly not if the patient is a child. The alternative is illustrated by the following case.

* A paper read to the Liverpool Medical Institution.

CASE IV.—*Tuberculosis of Caecum: Lateral Anastomosis: Death from Pulmonary Tuberculosis.*

A boy, aged 3, had been attacked every five days or so for several weeks before admission with vomiting and abdominal colic. The attacks were treated by enemata and aperients. The attack in consequence of which he was admitted was severe, the symptoms being again general abdominal pain, distension, and vomiting. He was in a medical ward at first, and was transferred later in consequence of the discovery of a tumour in the right iliac fossa.

On opening the abdomen the tumour was found to be caecum infiltrated with exudation due to active tuberculosis. A lateral anastomosis was made between ileum and transverse colon. The bowels moved with the aid of a simple enema on the fourth day.

The abdominal condition was relieved, but six weeks after his discharge from hospital he was readmitted with broncho-pneumonia affecting the right lung. The condition spread from the right base to the whole of the lung, and was tuberculous. He died three months later from the pulmonary condition.

At the other end of the colon the disease also takes the form of a stenosing infiltration. In the following case, although the precise condition has not been demonstrated, I think there is no doubt as to the nature of the lesion.

CASE V.—*Recurrent Attacks of Obstruction: Expectant Treatment.*

A lady, aged about 40, was under treatment during 1913 for a tuberculous focus in the lung; the nature of the infection was demonstrated bacteriologically. In June of that year she was sent to me with the history that for the previous two months she had had several attacks of severe left-sided abdominal pain, the attacks being associated with vomiting and watery diarrhoea. They were intermittent, and for several days at a time she had no pain. The sigmoid colon in the left iliac fossa was palpable, tender, and infiltrated. She continued to have similar attacks, all associated with distension and vomiting; in the intervals mucus was often noticeable in the stools, but there was no history of any bloody discharge. Towards the end of the year chronic constipation became marked. During the early part of 1914 the attacks of definite intestinal obstruction continued; they lasted usually about twenty-four hours, and then subsided.

The question of operation was considered but not urged in consequence of her pulmonary condition. I have only recently seen her again. The condition of the colon appears to have become stationary; her general health is good, but she still suffers from recurrent attacks of obstruction, the severity of which, her friends say, she minimizes. They are all associated with vomiting, distension, and abdominal pain. There is still to be felt, just inside the left anterior superior spine, a swelling of the bowel about the size of the normal spleen, firm and moderately, not acutely, tender.

I think there is no doubt that in this case we have to do with a stenosing local tuberculous enteritis of the upper part of the sigmoid loop. A good result should be obtained by excision, but to this she will not at present agree.

Rectum.

In tuberculous disease of the rectum surgical treatment can do little; exclusion is impossible unless it takes the form of colostomy, and excision is out of the question. If the lesion goes on to abscess formation in the pelvis, as it not infrequently does, then the whole course of the disease may be favourably influenced by drainage. The following case is illustrative:

CASE VI.—*Rectal Tuberculosis: Pelvic Abscess: Laparotomy: Improvement.*

A young woman, aged 21, had been ill ten weeks before admission to hospital, the diagnosis being enteric fever. The symptoms throughout had been pain in the lower abdomen associated with diarrhoea. Occasionally the pain had been acute, and on two or three occasions she had vomited. For five weeks before admission she had had offensive vaginal discharge. The clinical course of the disease had therefore been subacute.

Five days after admission a sinus in the posterior fornix was demonstrated; it was enlarged with dressing forceps and a drainage tube inserted. There was considerable improvement after this, but diarrhoea persisted and also a nightly rise of temperature. For the next two months she remained in this condition, interrupted by a single rigor.

At the end of this time the abdomen was opened, and in the pelvis an abscess cavity with thick walls was demonstrated and drained. The discharge from this abscess persisted, and two months later the abdomen was reopened to the right of the sinus. After extensive dissection the abscess cavity was isolated, an adherent and damaged coil of small intestine being dealt with by suture. Scattered tuberculous deposits were present on the visceral and parietal peritoneum around. It was then clearly demonstrated that the primary focus of disease was rectal, and not tubal as had been thought probable. The cavity was scrubbed with iodoform paste and drained both above the pubis and through the vagina. The day after operation a faecal discharge came from the hypogastric wound, but the discharge was copious only for a short time. When she was discharged from hospital the house-surgeon's note says: "During the last few weeks patient's condition has improved considerably, and she has also begun to put on flesh. The fistula is almost healed, the wound only requires dressing once a day, and there is very little discharge."

Two and a half years later this patient came to hospital again with an abscess over the sacrum, which was opened. In the interval her health had been good, but recently the old sinus above the pubis had reopened, and there had also been some vaginal discharge. She complained of no pain except during the formation of the sacral abscess. There was some intermittent diarrhoea during her stay in hospital. Her later history I do not know.

Mesenteric Glands.

Without demonstrable intestinal lesions, the mesenteric glands are frequently the site of abdominal tuberculous disease. Frequently it is widespread; sometimes it is local, and when local it may be dealt with favourably by operation. A common site for a local deposit is the mesenteric angle between caecum and ileum. It happens to every one from time to time to meet with this condition, the diagnosis before operation being chronic appendicitis. Attacks of sharp darting pains, without any other symptom and with long intervals of freedom, associated with quite definite and localized tenderness about the caecum—these are the usual phenomena. It is good practice, I think, to remove such a gland group, but this means the most careful enucleation of the enlarged glands separately, and is both difficult and laborious. Before setting out on such a proceeding one should satisfy oneself that the disease is apparently local and capable of being dealt with completely. The alternative to enucleation is excision of a mesenteric segment with its glands together with the corresponding length of bowel.

CASE VII.—*Excision of Tuberculous Mesenteric Glands.*

A boy, aged 11, was admitted to hospital with the history that during the previous year he had had occasional attacks of colic, pain being about the centre of the abdomen. A week before admission he had had a severe attack, and again three days before, accompanied by vomiting. A tumour was at this time found in the abdomen; it measured 2 in. vertically and 3½ in. transversely and was situated just below and to the left of the umbilicus. It had irregular rounded margins and was freely movable with the hand.

Two days after admission the abdomen was opened in the middle line and the tumour was found to consist of a local mass of tuberculous mesenteric glands, the central part being a thick-walled abscess cavity to which omentum was adherent. The mass was removed entire together with 3 ft. of corresponding ileum and an end-to-end anastomosis was done. An attack of bronchitis complicated convalescence. The bowels acted forty-eight hours after operation. He was discharged five weeks later.

I have not included in this survey the simple stricture of the small intestine which results from the cicatrization of tuberculous ulceration for the reason that I have never met with a case demonstrably of this nature. Nor have I included the cases of intestinal obstruction due to strangulation by bands originating in tuberculous foci, because they are of fairly frequent occurrence and the problem is usually that of simple relief of the strangulation. I offer the following suggestions on the surgical treatment of the conditions described.

SUMMARY OF RECOMMENDATIONS.

1. When tuberculous disease, either of ileum or large bowel, is associated with definite intestinal obstruction, operation is always necessary, and the choice lies between exclusion by anastomosis and excision. If the obstruction is acute, exclusion by anastomosis is to be preferred; if the obstruction is subacute the exact local condition must decide: a mass that is easily isolated is better removed.

2. When such tuberculous bowel lesions are not associated with obstruction, or with an obstruction that is chronic and capable of relief by aperient, the advisability of operation will depend on whether the bowel disease is or is not the sole demonstrable lesion in the body. If the lung is also affected it will probably be wiser to decide against operation.

3. With regard to disease of the rectum I know of no actual evidence that a remedy is to be found in the establishment of an artificial anus. This has been recommended and practised on the ground that keeping the rectum empty affords a better prospect of resistance and recovery. I know at any rate of one instance in which this procedure added to the patient's discomfort without

obvious benefit to the rectal condition. Before recommending this method of treatment we should require a body of evidence that cure of the rectal disease can really be anticipated in a fair proportion of cases. When the rectum is affected above the peritoneal reflection, and is associated with abscess, evacuation of the abscess by the intraperitoneal route is to be recommended, but except for the treatment of this complication operation has no service to offer.

4. Lastly, in selected cases, operation gives good results in limited tuberculous disease of mesenteric glands. According to the extent and stage of the focus this will take the form either of enucleation or of excision of the mesentery involved, together with associated bowel.

SPHENOIDAL EMPYEMA AND EPIDEMIC CEREBRO-SPINAL FEVER.*

BY

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THERE are four varieties of the clinical course taken by cerebro-spinal fever.

First, there is the type which, commencing as an acute illness, may then go on to recovery or may result in death.

There is, secondly, the type of case that, after having shown considerable improvement from the acute stage, suffers from a recrudescence, both in general symptoms and in the condition of the cerebro-spinal fluid. This usually occurs from the fifth to the twelfth day, and may subsequently lead to recovery or death.

Thirdly, there is the type of case that, after convalescence from the acute stage, still retains a tendency to suffer from malaise, headaches, and vomiting, which gradually become more pronounced. The patient becomes extremely emaciated and death occurs from hydrocephalus.

Fourthly, there is the case that, having entirely recovered from the preliminary attack, months later has a relapse which may prove fatal.

Thirty-four *post-mortem* examinations were made in the Netley district between 1915 and 1919, on cases of cerebro-spinal fever dying as a result of one of these four types of the disease. These are all grouped in the accompanying tables under three of these types:

A. Those dying during the acute illness ... 21 cases
B. Those dying during a recrudescence ... 6 ,,
C. Those dying from hydrocephalus during convalescence ... ... 7 ,,

One case only (22) died as a result of a relapse occurring months after the preliminary attack, but as he suffered from an apparently typical attack of the disease with a recrudescence he is grouped under heading B for convenience.

Of these 34 deaths only 11 occurred within the first week of illness. In this observation we differ from Rolleston,[1] who states that "more than half the fatal cases occur during the first week of the disease." A possible explanation of this difference is that at Netley we were fortunately able to insist that every case in which the least suspicion of cerebro-spinal fever was entertained should be immediately admitted to the isolation hospital. On admission, lumbar puncture was performed as a routine within a few minutes of arrival, antimeningococcic serum being administered there and then to cases showing turbid cerebro-spinal fluid. A bacteriological diagnosis was only waited for when there was middle-ear disease or a head wound. This very early administration of serum, often within an hour or two only of the suspicion of cerebro-spinal fever being present, probably saved many cases who would otherwise have died during the first week.

In a previous paper[2] it was shown that of 36 cases in which it was possible to obtain cultures from both the nose and the cerebro-spinal fluid, in 35 the types of meningococci in the two sites were identical, as proved by both agglutination and saturation tests. The irregularity shown by the remaining case has been discussed.

In no case was any inflammatory process discoverable about the cribriform plate of the ethmoid by naked-eye examination. The contents of the pituitary fossa showed

* A paper read before the Pathological Section of the Royal Society of Medicine.

TABLE I.—A. *Acute Cases.*

No. of Case.	Days from Onset to Death.	C.S.F. Type.	Nasal Type.	Sphenoidal Sinus.		Sphenoidal Bone.	
				Empyema.	Meningococci.	Inflammation.	Meningococci.
1	1	N.O.	N.O.	Serous effusion	Not found	Nil	—
2	1	II	N.O.	Yes	Not found	Yes	Not found
3	2	II	N.O.	Yes	II	Nil	—
4	2	II	II	Yes	II	Nil	—
5	3	Pos.	Pos.	Yes	Pos.	Yes	Pos.
6	3	Pos.	Pos.	Yes	Not found	Nil	—
7	3	II	N.O.	Serous effusion	II	Nil	—
8	3	I	I	Yes	Mening.	Yes	Not found
9	4	I	N.O.	Yes	Mening.	Nil	—
10	5	Pos.	N.O.	Yes	Not found	Nil	—
11	7	Pos.	N.O.	Yes	Not found	Nil	—
12	9	I	I	Yes	I	Nil	—
13	10	Pos.	Pos.	Yes	Not found	Yes	Not found
14	11	I	N.O.	Yes	Not found	Nil	—
15	16	II	II	Yes	Mening.	Yes	II
16	19	Pos.	N.O.	Yes	Mening.	Nil	—
17	27	III	N.O.	Normal	—	Nil	—
18	34	Pos.	Pos.	Yes	Pos.	Yes	Pos.
19	40	Pos.	N.O.	Yes	Not found	Nil	—
20	47	Pos.	Pos.	Yes	Not found	Nil	—
21	68	Pos.	N.O.	Yes	Mening.	Yes	Not found

N.O. = Culture not obtained. Roman numerals denote Gordon's four types of meningococcus as proved by serological tests. Pos. = Meningococcus grown, but serological tests not performed. Mening. = Organism having the morphological and staining characteristics of the meningococcus seen, but not grown.

TABLE II.—B. *Cases with Known Recrudescences.*

No. of Case.	No. of Days to		C. S. F. Type.	Nasal Type.	Sphenoidal Sinus.		Sphenoidal Bone.	
	R.	D.			Empyema.	Meningococci.	Inflammation.	Meningococci.
22	8	8	II	II	Yes	Mening.	Nil	—
23	5	9	I	I	Yes	I	Nil	—
24	9	14	I	I	Yes	I	Nil	—
25	12	16	III	I or III	Yes	Mening.	Nil	—
26	42	48	II	N.O.	Normal	—	Nil	—
27	Rr.	99	Pos.	Pos.	Yes	Mening.	Nil	—

R. = Recrudescence. Rr. = Repeated recrudescence. D. = Death.

TABLE III.—C. *Convalescent Cases Dying from Hydrocephalus.*

No. of Case.	Days from Onset to Death.	C. S. F. Type.	Nasal Type.	Sphenoidal Sinus.		Sphenoid Bone.	
				Empyema.	Meningococci.	Inflammation.	Meningococci.
28	87	Pos.	II	Yes	Not found	Nil	—
29	90	Pos.	Pos.	Yes	Mening.	Nil	—
30	93	II	II	Yes	II	Nil	—
31	109	Pos.	N.O.	Yes	Mening.	Nil	—
32	133	Pos.	I	Yes	I	Nil	—
33	147	Pos.	II	Yes	Not found	Nil	—
34	199	I	I	Yes	Not found	Nil	—

Note.—In no case was the cribriform plate of the ethmoid affected. The contents of the pituitary fossa were inflamed in every case. In Case 8 there was inflammation of the middle ear, and in Case 9 pus; in all other cases the ear was not affected.

inflammation in every case. The middle ear was seen to contain pus in one case, and there was congestion of the bone but no pus in another case.

There was an empyema of the sphenoidal sinus in

A. Acute case deaths ...	... 20 out of 21 cases
B. Recrudescence deaths	... 5 out of 6 ,,
C. Hydrocephalus deaths	... 7 out of 7 ,,

An empyema of the sphenoidal sinus is taken to mean a cavity filled with pus, muco-pus containing fresh and autolyzed pus cells, or glairy fluid showing pus cells, and the mucous membrane of the sinus showing congestion.

In 34 necropsies an empyema of the sphenoidal sinus was present in 32 cases. In the pus from the sphenoidal sinus—

Meningococci were proved serologically in ...	8 cases
Meningococci were cultured but were not tested serologically in	2 ,,
Meningococci were seen but not grown in ...	10 ,,
No meningococci were seen or grown in ...	12 ,,

Inflammation of the sphenoid bone over the empyematous sphenoidal sinus was not found at all in recrudescence and hydrocephalus deaths, but was found in 7 cases of deaths from the acute illness. In these 7 cases the meningococcus was only found three times, and the type of the meningococcus was only able to be proved once, but was in this case the same as that found in the nose and cerebro-spinal fluid.

The association of sphenoidal sinus inflammation with cerebro-spinal fever was first noticed by Westenhoeffer,[3] who only found it to occur in one-third of his twenty-nine necropsies. Other workers have also reported cases showing empyemata of the sphenoidal sinus, but have generally considered that this condition is not the cause of the disease, either because they have been unable to find an empyema in all cases or because they have been unable to trace the meningococcus in the walls of the sphenoidal sinus or in the body of the sphenoid bone. Very great improvements have recently been made by Mervyn Gordon in the culture medium for the propagation of the meningococcus, so that a meningococcus can now, under suitable circumstances be made to grow as rapidly and luxuriantly as a *Bacillus coli*. These improvements were not available for most of the workers in this connexion. In spite of these advantages the meningococcus was not demonstrated in the sphenoidal empyema in 12 of these cases. This was possibly due to the length of time that elapsed between death and the necropsy in many cases, and also to the chilling of the plates during transport from a distant camp to the laboratory in very cold weather. The majority of deaths occurred during cold weather, and meningococci are difficult to cultivate in primary culture unless precautions against chilling are taken.

Thus in 34 deaths from cerebro-spinal fever empyemata of the sphenoidal sinus were found 32 times; meningococci were found 20 times in the sinus and 3 times in the sphenoid bone. In no other diseases were empyemata of the sphenoidal sinus observed, except during the epidemic of "Spanish influenza," when empyemata of the sphenoidal sinus were frequently found.

The relationship between an empyema of the sphenoidal sinus and cerebro-spinal fever may now be considered. The primary site of a meningococcus infection in the human body is undoubtedly the nasopharynx. The meningococcus has been demonstrated in this position not only early in the acute attack, but also in the incubation period,[4] in carriers who never develop meningeal symptoms, in meningococcal pneumonia, etc. The infection is propagated from person to person, as is a common cold, from nose to nose. The frequency of the carrier condition and the relative infrequency of the disease is noteworthy. It is probable that the whole population of England has been a carrier at some time or other during the last five years, and yet the total number of cases is relatively small.

At the time when contacts to cases of cerebro-spinal fever were examined for the carrier condition, it was always noticed that the people under examination were suffering from coughs and "colds." Many of the contacts gave pure cultures of the meningococcus in the nasopharynx. This suggested that the "colds" were in some cases due to the meningococcus. Also several carriers, when first isolated, suffered from a profuse watery nasal discharge, from which only the meningococcus could be isolated. Chronic carriers nearly always had a gluey nasal discharge, which was apparent on examination of a nasal swab. It thus appears that the meningococcus can give rise to a nasal catarrh. It seems probable that this is the natural disease produced by this organism, and it is only when some other factor comes into play that meningitis or septicaemia results. This other factor does not seem always to be a rise in virulence of the meningococcus, for of the camp epidemics about Southampton and Winchester during the war it was only in one epidemic that all the cases of meningitis were due to one serological type of meningococcus. Usually two or three serological types of meningococcus were recognized in the cases of one epidemic, the carriers found in the camp corresponding with the serological types of meningococcus in the cases.

Thus, in the Winchester epidemic of the spring of 1917 there were 8 cases, 3 due to Gordon's Type I coccus, 2 due to Gordon's Type II, 2 due to Type IV, and one in which the type was not proved. The carriers found were all infected with one of these three types of meningococcus; no Type III carriers were found.

On another occasion two cases occurred in one ward in a hospital within four days of one another. If serological tests had not been performed, it would have been felt certain that either one case infected the other, or that both were infected from the same source. This was not so, as the first case was due to Gordon's Type II, and the second due to Gordon's Type I or III coccus.

Some epidemics in other parts may have been produced by a particularly virulent meningococcus of one serological type, but it is evident that this is by no means a necessary condition for the outbreak of an epidemic.

The frequency of the appearance of a sphenoidal sinus empyema suggests that this might be the determining factor in the onset of the meningitic form of the disease at any rate. The empyema may be the result of an inflammatory reaction to the meningococcus on the part of the mucous membrane lining the ostia. The fact that the meningococcus was several times isolated in pure culture from the sinus suggests that for the inflammatory closure of the ostia a mixed infection is not necessary, although streptococci and staphylococci were also found on occasions to be present. Thus a sphenoidal empyema might be produced by a meningococcal infection of the nasal mucosa of an individual whose resistance to the meningococcus was such that the infection resulted in a vigorous inflammatory reaction. Anatomical or pathological peculiarities in this region might also favour the production of an empyema.

In cases dying from cerebro-spinal fever an empyema of the sphenoidal sinus was common, in only 2 cases (17 and 26) in this series, out of 34, was this condition not found. Both these cases died at a considerable number of days from the onset, 27 and 48 respectively; 47 completely recovered cases, on the other hand, were examined by rhinological experts, Dr. Peters and Dr. Bryant, who found that no sphenoidal empyemata were present. Chronic carriers[5] were also carefully examined bacteriologically, and no meningococcic infection of the sinus was found. Thus in dying cases an empyema was frequently found; in completely recovered cases no empyemata were discovered. A series of five cases showing symptoms of hydrocephalus were operated on for drainage of the sphenoidal sinus.[6] Of these cases all showed the presence of a sphenoidal empyema. The meningococcus was only cultivated and proved serologically in one of these cases from the sphenoidal pus obtained at the operation; a typical Gram-negative diplococcus was seen only, but not grown, in another case. But in two other cases, subsequent to the operation, the meningococcus reappeared in the throat in pure culture, after it had entirely disappeared for some weeks previously. Subsequent to the operations all cases appeared temporarily worse, three made complete recoveries, two died with typical hydrocephalus *post mortem*. Of the recovered cases one went through a typical relapse after the operation, with reappearance of the meningococcus and pus in the theca, subsequently completely recovering.

From this it would seem that if early and vigorous serum treatment be given, and if the sphenoidal empyema disappear, recovery will probably occur. If, however, the empyema persist, the case will, if it recover from the acute illness, either relapse or go on to hydrocephalus.

In order to see if draining the sphenoidal sinus during the acute stage of the illness would accelerate recovery, three cases of cerebro-spinal fever were operated on; a sphenoidal empyema was found in each case, but each case died. This discouraged further operative procedure during the acute stage.

The next point under consideration is, how do the meningococci get from the nasal mucosa to the meninges?

There are many possible routes:

1. The arachnoid prolongations round the olfactory nerves.
2. The perineural lymphatics.
3. Direct inflammatory extension.
4. The pituitary.
5. The systemic lymphatics.
6. The blood stream.
7. The middle ear.

1. *The Arachnoid Prolongations Round the Olfactory Nerves.*

This route is favoured by Netter and Debré and Flexner. Netter and Debré show that dyes, Indian ink, and meningococci can get from the cerebro-spinal fluid into the nose by this route, but they do not show that the reverse can take place. Their experiments show that the natural direction of the current is from the cerebro-spinal fluid to the lymphatics; it is thus difficult to see how the meningococci could progress against the stream to gain access to the meninges except by inflammatory extension. In none of this series of *post-mortem* examinations was there any naked-eye appearance of inflammation about the cribriform plate of the ethmoid.

2. *The Perineural Lymphatics.*

In papers by Orr and Rows,[7] Teale and Embleton,[8] it has been shown that not only dyes and toxins, if injected into a nerve, will travel up the perineural lymphatics to the cord, but also particulate material, such as washed spores. These spores can be traced up the perineural lymphatics into the substance of the cord itself. In this way it might be possible for the meningococci to travel up the perineural lymphatics to the brain substance. Cerebro-spinal fever does not, however, appear to start as an encephalitis, so, although this route would be a satisfactory one for polio-encephalitis, it does not seem suitable for cerebro-spinal meningitis, especially as it has been shown that neither toxins, dyes, nor particulate material, when passing up a perineural lymphatic, get into the cerebro-spinal fluid.

3. *Inflammatory Extension.*

It has been suggested that meningococci could gain access to the cerebro-spinal fluid by a process of inflammatory extension through the bone separating the nose and accessory sinuses from the meninges. In this series of necropsies there is evidence of direct spread from the sphenoidal sinus to the sphenoid bone, and so to the overlying meninges. In seven cases there was inflammation, and the meningococcus was found three times in the bone. In the other cases no evidence, as viewed by the naked eye, of inflammatory extension could be discovered.

4. *The Pituitary.*

An infection from Luschka's pharyngeal tonsil along a possibly patent connexion between this and the pituitary gland has been suggested. Luschka's tonsil is one of the sites in the nose most richly infected with the meningococcus. In this series of necropsies the pituitary body always showed infection, but it is obvious that this would certainly occur anyhow from its intimate relationship with the cerebro-spinal fluid.

5. *The Systemic Lymphatics.*

The ordinary flow of lymph from the nasal passages is away from the brain, and in connexions between the subarachnoid space and the lymphatic system the current is away from the meninges. If bacteria[9] are injected into the arachnoid space they rapidly appear in the lymphatics of the head and neck. If, however, a process occurs, such as an empyema of the sphenoidal sinus, the ordinary direction of lymph flow might be reversed, and bacteria be thus forced from the lymphatics of this neighbourhood towards the meninges, without showing any sign of inflammatory extension. In the case of a sphenoidal empyema large numbers of meningococci would get into the lymphatics, and by this means would also get into the blood stream. It would only be necessary for a sphenoidal empyema to exist for a very short time to produce these effects, possibly only for half an hour. If the sphenoidal empyema discharged at the end of a short time into the nose, and if the meningococci that had reached the meninges were destroyed, a recovery would ensue. If, however, the sphenoidal sinus empyema persisted, and kept on pouring fresh infection into the meninges, the case would probably die.

6. *The Blood Stream.*

Many workers have considered that the infection of the meninges occurs by way of the blood stream, the meningococci gaining access to the blood from the nasopharynx. This suggestion has been based partly upon the early appearance of the meningococci in the blood, and partly on those cases of meningococcal infection where no meningitis occurs. The blood stream, however, would receive meningococci very early in the infection of the nasal mucosa, at any rate as soon as an empyema of the sphenoidal sinus occurred. The meningococci would reach the blood stream from this region via the deep cervical lymphatic trunks, which join the thoracic duct just before it enters the venous system in the neck. Also, as soon as meningococci gained access to the cerebro-spinal fluid, they would appear[9] in the blood stream, both direct, via the Paccionian bodies, and also by way of the lymphatics, through their junctions with the subarachnoid space. The blood then would, from the very earliest stages of the disease, receive repeated and heavy showers of meningococci from the sphenoid region and the cerebro-spinal fluid. Thus it can be said that the early finding of the meningococcus in the blood stream is no indication that the meninges are primarily infected by this route.

In the recent outbreaks of "Spanish influenza" empyema of the sphenoidal sinus was a common finding in the fatal cases, but meningitis was rarely found. It is not necessary, then, that an empyema should be followed by meningitis. It is thus possible that the meningococci can gain access to the blood stream from a sphenoidal empyema, and so be carried round to the meninges and set up inflammation.

7. *The Middle Ear.*

Inflammation in this region was only found in two necropsies in this series. It is unlikely that this is the portal of entry of the meningococcus to the meninges.

Thus it would appear improbable that the meningococci gain access to the meninges through the arachnoid prolongations round the olfactory nerves, or by way of the perineural lymphatics. It is probable that the meningococci pass by way of the lymphatics from the sphenoidal sinus direct to the meninges, with or without naked-eye signs of inflammation. It is possible also that they can be conveyed to the meninges by the blood stream.

The relationship between a persistent sphenoidal empyema and hydrocephalus may now be considered.

In the seven deaths from this condition an empyema was found in each case. Five cases were operated on, and pus was found in the sphenoidal sinus each time; two of these cases died, and are grouped in with the *post-mortem* cases. There were thus a total of 10 cases of hydrocephalus, and in each case a sphenoidal empyema was found. The cerebro-spinal fluid in the ventricles of each of the cases which died contained pus cells. The cerebro-spinal fluid taken from the lumbar region was usually quite clear.

This suggests that there is a close relationship between empyema of the sphenoidal sinus and the hydrocephalus that develops after an attack of cerebro-spinal fever. The hydrocephalus develops as a result of a chronic infection about the foramina of Luschka and Magendie. This chronic infection also appears to exist in the ventricles. The exact path by which the meningococci in the sphenoidal sinus empyema reach the interior of the ventricles is not clear, unless it be by the blood stream. But there would appear to be some relationship between the two positions, inasmuch as the only three cases who recovered from the hydrocephalus condition did so after an operation for drainage of the sphenoidal sinus. It might be argued that these three cases who recovered were not examples of hydrocephalus at all. Against this it is urged that all five cases operated on were advanced cases with typical symptoms; the two that died showed typical necropsies, and all other cases showing these symptoms died with typical necropsies.

The course of events in a case after infection of the nasal mucous membrane with the meningococcus might be as follows:

1. A simple catarrh, followed either by recovery or a chronic infection.
2. A vigorous local reaction in the nasal mucosa followed by sphenoidal empyema. This may produce a general blood infection, with or without infection of the meninges.

If the sphenoidal empyema disappear, the body, with or without the aid of antiserum, may be able to deal with the meningococci that have gained access to it, or death may result. If the sphenoidal empyema persists, and very heavy discharges of meningococci are poured into the body, death will probably result. If, however, the empyema remains quiescent, improvement may occur, but at any time a recrudescence or a relapse may supervene. A quiescent empyema may also keep up a smouldering infection which will lead to hydrocephalus.

Operation on the sphenoidal empyema always produced an increase in general symptoms. During the acute stage of the disease this increase in symptoms appeared to accelerate, at any rate, a fatal termination. In hydrocephalus cases recovery did occur in three cases, though one case went through a severe relapse.

The author wishes to acknowledge his indebtedness to Miss Iris Harmer for her valuable work in connexion with this research.

Summary.

1. In thirty-four necropsies on persons dying from cerebro-spinal fever, empyema of the sphenoidal sinus was found thirty-two times.

2. In ten cases of hydrocephalus following cerebro-spinal fever an empyema of the sphenoidal sinus was found in every case.

3. In forty-seven completely recovered cases of cerebro-spinal fever no sphenoidal empyemata were present.

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STERILITY IN THE MALE.

BY

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WHEN a marriage is infertile it is still sometimes too readily assumed that the woman is at fault, although all writers on the subject recognize that the defect may rest with the husband. The object of the following summary is to emphasize the fact that no operative procedures on the wife are justifiable until the male has been properly examined, and until it can be definitely stated that his semen contains live, healthy, and vigorous spermatozoa.

It is difficult to obtain reliable statistics as to the frequency with which the male is at fault in childless marriages. The figures given by different authorities show great discrepancies, but at any rate they indicate that the fault of the childless marriage lies far oftener with the man than is commonly supposed. Hubner, in his investigation of 129 childless marriages, discovered a male sterility of 59 per cent., and Kehrers, amongst 40 similar couples, one of 35 per cent. Gross, in figures collected from various authors, convicts the husband in 17 per cent. of childless marriages, whilst Vedder places it as high as 70 per cent. Barney, in investigating 40 childless unions, found 20 sterile husbands, and, what is still more suggestive, discovered that the wives of 4 of these (20 per cent.) had undergone more or less severe operations for sterility! Even if the lowest of the above percentages be taken as correct, it is sufficient to support the dictum that "the investigation of childlessness should begin not with the curettage of the wife, but with the microscopic examination of the husband's semen" (Belfield).

The investigation of sterility in the male necessitates no small amount of labour and skill. Such gross lesions as epispadias, hypospadias, cryptorchism, malignant disease, bilateral tuberculosis, and gummata of the testis, require no consideration beyond the noting of the fact that tuberculous epididymitis, even although it be unilateral, causes azoöspermia in 85 per cent. of cases. This fact depends on the frequent association of a unilateral tuberculous epididymitis with disease of the prostate. It is the case where no gross lesion of the male genitalia is present that calls for careful investigation.

Whereas with the female it is Nature that plays the chief rôle in producing sterility, with the male the condition is more often the legacy of disease. A careful history of previous illnesses is the first step in the investigation. The orchitis of mumps, especially when it occurs about the age of puberty, is, as a rule, followed by atrophy. Fortunately such an orchitis is generally unilateral. Alcoholism, exposure to *x* rays, debilitating diseases, and sexual excesses, whether from natural coitus or masturbation, produce an azoöspermia or oligospermia which is temporary in nature. Prolonged and absolute continence has been said to have a similar result (Barney). Non-venereal infections of the testicle and prostate, whether by typhoid, *Bacillus coli*, or staphylococci, may similarly result in azoöspermia, oligospermia, or necrospermia, as the case may be. In a few cases it would appear that the otherwise healthy testicle of a normally active and sexually vigorous man may be entirely unproductive of spermatozoa (Janet).

But although non-venereal causes may sometimes be responsible for sterility in the male, by far the commonest cause is a previous attack of gonorrhoea. When it is remembered that in many countries the incidence of this disease is from 50 to 75 per cent. of the total adult male population, its importance as a potential cause of sterility amongst males cannot be exaggerated. All authorities recognize the frequency with which the posterior urethra becomes implicated in gonorrhoea, and it is with posterior infections that sterility is usually associated.

The frequency with which gonorrhoea, and especially gonorrhoea affecting the posterior urethra, produces sterility is borne out by many observers. In this connexion figures published by Benzler (*Arch. f. Derm. und Syph.*, 1898, xlv) are especially interesting. This observer followed the history of German soldiers who had suffered from gonorrhoea and had been subsequently married for three years or over. Especial attention was paid to a previous history of epididymitis.

Of those who had escaped epididymitis ...	10.5% were childless.
Of those who had had unilateral epididymitis	23.4% were childless.
Of those with previous bilateral epididymitis	41.7% were childless.

Clinical observations on the husbands of childless women with normal genitalia support these figures. The majority of these, when sterile, will be found to have suffered from gonococcal prostatitis, with or without epididymitis. It is often the prostatitis rather than the epididymitis that is the determining factor, and, when the proximity of the ejaculatory ducts and their liability to occlusion is remembered, this is not surprising. Moreover, even when no mechanical obstruction has been produced, pathological changes in the prostatic fluid resulting from inflammation are alone capable of producing necrospermia or oligospermia. Even healthy spermatozoa lose their vigour in the presence of pus or blood, and when, in addition to this, the activating secretions of the prostate are deficient, necrospermia and asthenospermia are extremely probable.

The second step, therefore, in the investigation of a case of male sterility is a careful and complete examination of the genitalia and urethra for evidence of past or present gonococcal infection. This must invariably conclude with a urethroscopy of the posterior urethra, for it is in the presence of a prostatitis, a vesiculitis, or a colliculitis, that the explanation of sterility will often be found.

The final step in the examination includes a microscopic examination of the male secretions. As a preliminary the secretions expressed as a result of prostatic massage are subjected to examination. Attention is paid to the presence of pus cells, and the appearance of such spermatozoa as may be present is noted. This examination is, however, but a preliminary to the more detailed investigation of the seminal fluid obtained after coitus with a condom. This examination, although it gives valuable information, is unfortunately open to error. The condition of spermatozoa some hours after evacuation into a condom does not necessarily reflect their condition when deposited in the vagina. For this reason Wolbarst urges the advisability of examining the vaginal and cervical secretions at various intervals after coitus has taken place. Such an examination is not always obtainable, but when suitable arrangements can be made the results are invaluable. Details of the examination are beyond the scope of this article, but as a result of observation of the spermatozoa, with reference to their number, freedom from imperfect or degenerate forms, mobility, and vigour, the question of the fertility or non-fertility of the male can in the great majority of cases be put beyond doubt.

In the above summary no attempt has been made at completeness. The subject of sterility in the male is far beyond the limits of a brief note. What has been attempted is merely to emphasize two facts which, although they may be known, are apparently too often forgotten. The first of these is the relative frequency with which sterility occurs amongst males; the second is the lack of justification in subjecting any woman to operation for sterility unless her husband has undergone a careful preliminary examination.

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THE SIGNIFICANCE OF THE POSITION OF A "CONTRACTION RING"

IN CASES OF EXTREME PELVIC CONTRACTION WITH VERTEX PRESENTATION.

BY

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A RING of contracted uterine musculature is liable to form in the region of the junction of the upper and lower uterine segments in delayed labour.

One of the commonest conditions in which delay occurs is contracted pelvis. When, in addition to a marked degree of pelvic contraction, the fetus presents by the vertex, the site of this ring, in relation to the fetal parts, is of considerable importance, both from the point of view of etiology and of treatment.

In obstructed labour due to contracted pelvis with a vertex presentation it is at least doubtful if a true "retraction" (Bandl) ring can form before sufficient upper uterine segment retraction has occurred to elevate the site of the ring above the level of the fetal shoulders. But cases are occasionally seen in which the formation of a "ring" has become so marked before this stage, that it is found constricting the fetal neck more or less closely. The trunk and limbs of the fetus are then imprisoned above the ring in an unretracted, but often apparently tonically contracted, upper uterine segment. With a markedly contracted pelvis, the head, in these cases, is is held in purchase between the ring above and the pelvic brim below.

The most recent view is that a "ring" forming in this position under these circumstances does not merit the name of "retraction ring" (Bandl), but is rather of the nature of a "contraction ring" due to local spasm of the uterine muscle (with or without contraction—but without definite marked retraction—of the upper uterine segment). In the opinion of the adherents of this view the chief cause of this spasm, before marked retraction has taken place, is over-irritation of the uterus by excessive manipulations in efforts to deliver.

Though opinion is not even now unanimous on this point, there is undoubtedly much to be said in its favour. Budin,[1] Cheron,[2] and Demelin,[3] in 1898-9 (and more recently White[4]), have described a type of case in which such a ring occurs with apparently unretracted, and even flaccid, upper uterine segment. Berkeley, Russell, and Fairbairn[5] speak of it as an established clinical entity. In Germany von Rosthorn[6] and Bumm[7] state that a "contraction" ring begins to be evident on the inner surface of the upper part of the lower uterine segment from the onset of uterine contractions in every labour—that is, before much retraction has occurred. On the other hand, Veit[8] denies the occurrence of rings of this type (and Williams agrees with him). He says in effect that all such rings are true retraction rings, and that the views of Budin and others are the result of faulty observation.

Jardine[9] (quoting four cases, apparently of this type) discusses the subject fully. He points out that retraction of the upper segment is always occurring *pari passu* with contraction. He speaks of the retraction (or Bandl's) ring varying in position with the degree of retraction which has occurred. But he speaks of it always as a retraction ring, wherever formed. In some of his quoted cases it is interesting to note that there was no obvious evidence—that is, no marked pelvic contraction—of obstructed labour.

Whatever the exact pathogenesis of the ring may be in these circumstances a very serious proposition is undoubtedly encountered when it develops in association with a markedly contracted pelvis.

I have had the opportunity of treating one case of this type and of observing the treatment of another. In both the conjugate diameter was so small that the indication was absolute for Caesarean section had the cases been seen at or before the onset of labour. There had, however, been much intrauterine manipulation in both during previous attempts to deliver. A ring in both cases tightly constricted the fetal neck (vertex presenting.) It appeared quite impossible that the head could be delivered upwards through the ring if Caesarean delivery were attempted. It appeared equally certain that, even were it possible to deliver the head *per vias naturales*, it would have been quite unsafe to attempt extraction of the trunk through the narrow ring, however extensive the previous embryulcia.

In the case I treated personally the upper uterine segment showed some evidence of thickening above the ring as compared with the part below, the fetal trunk being somewhat difficult to palpate distinctly. The ring sulcus was quite marked on external palpation, and indeed to the eye.

In such cases an unusually difficult situation is presented, the fetal head being absolutely fixed and impacted between the "ring" above and the true brim below. By the time the case reaches this stage the fetus is usually dead, owing to the cutting off of the maternal blood supply—the result of tonic uterine contraction. An accessory factor in one of the quoted cases was an unreplaced prolapsed cord, which, with premature rupture of membranes (both cases), is a not unusual occurrence in marked degrees of pelvic contraction.

In considering treatment of this condition it must be remembered that, while the usual death of the fetus gives the widest latitude in choice of procedure, the patient is generally in rather bad shape physically. There is danger in extensive or prolonged manipulations both of general collapse and of uterine rupture. The type of interference involving the least shock, and that capable of being performed most rapidly, is that to be chosen. The lines of treatment calling for consideration are the following:

1. Craniotomy alone.
2. Craniotomy with embryulcia.
3. Caesarean section alone.
4. Caesarean section after craniotomy.
5. Caesarean section after craniotomy and decapitation.

Craniotomy alone will not help for obvious reasons.

Craniotomy with embryulcia, under deep chloroform-morphine anaesthesia, to relax the uterus (morphine gr. $\frac{1}{3}$ to $\frac{1}{2}$ given at least half an hour before operation), might allow of delivery *per vias naturales* in cases with less than the most severe degrees of pelvic narrowing. Under unfavourable conditions for better forms of treatment (for example, unsuitable rooms for operations) this line of treatment might be tried, but it should only be considered under such conditions and then only in conjugates of $2\frac{1}{4}$ in. or more.

It is not the best treatment because, apart from the danger of deep chloroform anaesthesia in such poor subjects—

(*a*) Time may be lost in waiting and in the process of manipulations.

(*b*) Necessary manipulations may possibly cause recurrence of spasm.

(*c*) The danger of uterine rupture (now imminent) is great.

(*d*) I have reason to believe, from personal observation (see below), that relaxation of the ring is not always attained to a useful extent.

Caesarean section without preliminary craniotomy will not in the vast majority of cases allow of delivery, as the "ring" will rarely allow of extraction of an uncrushed head.

The best choice for the patient lies between craniotomy followed by Caesarean section, and craniotomy *plus* decapitation and Caesarean section. Preliminary craniotomy should be done in any case. Decapitation will be difficult, and not without danger in such cases. It will prolong the interference, though no doubt it removes the possibility of trouble in subsequent upward withdrawal of the crushed head through the retraction ring during Caesarean section. The former method is the better, as in any case the neck could be more rapidly divided from above if necessary, and the head extracted later in the unlikely event of its not being deliverable upwards through the ring.

All cases of this type which have been "handled" to any extent (as many will have been before coming under observation) are so likely to become septic that it will often be safest to do Caesarean hysterectomy (or, if preferred, the Porro operation). If supravaginal hysterectomy be the operation chosen the peritoneum over the cervical stump should alone be sutured, the stump itself being left open to secure better drainage of the parametria.

In the unlikely event of the fetus being alive, an effort must be made to save it, even at added risk to the mother.

Under suitable conditions immediate abdominal Caesarean section, with rapid incision of the ring internally, would be the correct treatment. The site of incision being under immediate control, the choice of immediate suture or hysterectomy would then be guided by the probability of previous septic infection.

The following is the type case, the story of the other (particulars of which I am not at liberty to publish) being almost exactly similar.

Mrs. M., 29 years, primipara, was seen in consultation in a nursing home. The doctor reported the patient twenty-four hours in labour, and that membranes ruptured early; the os was fully dilated. The head was quite above brim, marked overlapping, but held down firmly on to brim and not movable to any extent. The cord was prolapsed and pulsation absent.

The marked retraction ring was very palpable and visible above fetal head but below the shoulders. Fetal parts could not easily be made out by palpation. Tonic, slightly tender upper uterine segment. Forceps had been applied several times without result. (Blunt-hook traction under chin had been tried for some time, and the hook was still in position when I first saw the case.) The temperature was 99°, and the pulse 100. Pelvic mensuration showed: Interspinous diameter, 10 in.; intercristal, 10 in.; diagonal conjugate, 2¾ in. Markedly oblique rickety flat type of pelvis.

The indications were absolute for Caesarean section, but there had been much handling before I saw the case, and considerable laceration and oedema of the soft parts were present. It appeared certain that the patient must be extensively septic.

Operation.

I therefore hesitated to do abdominal Caesarean section at once and decided to give the patient another chance of delivery *per vaginam*. The head was first thoroughly broken up. Then, under deep chloroform-morphine anaesthesia (in the hope of relaxing the ring and thus of being able to get the shoulders past it and do an extensive embryulcia) steady traction of moderate force was tried for a short time. The ring showing no sign of relaxing, and the patient being in indifferent condition, it was decided to waste no more time, and abdominal Caesarean section was performed as quickly as possible. During the operation, though the anaesthesia was deep and the patient still under morphine, the fetal neck was still closely held in the ring, and the well-broken-up head was only extracted upwards through the ring with some difficulty. The ring did not appear very dilatable. The uterine wall appeared rather thicker than usual (not markedly so) during incision. Supravaginal hysterectomy was done. Both adnexa were left *in situ*.

Infection of an acute septicaemic type began on the third day of convalescence, and the patient had a stormy passage for three weeks, when the temperature subsided.

The patient was given *Streptococcus phylacogen* during the first week, and as this appeared to have no effect on the condition, she had two injections of a heterogeneous polyvalent streptococcic vaccine at intervals of a week. Continuous breast saline was given throughout.

I do not doubt that the removal of the uterus saved the patient from a still more violent sepsis and a worse fate.

In closing, it appears appropriate to point the moral that prevention is better than cure. A careful measurement of the most important diameters of the bony pelvis should be made in all primiparae, and in pluriparae with a history of previous difficulty in labour. Of more importance still is to note the position of the fetal head and its fit in the brim from ten to seven days before the expected date of labour. These should not nowadays be regarded as counsels of perfection. The necessary investigations are neither highly technical nor difficult, and are constantly practised by some practitioners (and they not the least busy). If they were carried out by all we should see far fewer of these "regrettable" cases than we do at present.

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BY an Act dated October 20th, 1919, every Frenchwoman admitted to maternity benefit under the law will receive during the twelve months following delivery a supplementary allocation of 15 francs a month at the cost of the State. The allocation will be granted as long as the law relative to indemnity for the increased cost of living continues in force, on condition that the mother suckles her infant and takes proper hygienic care of herself and her child.

RHINOPLASTY AND CHEILOPLASTY.

BY

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AN intelligent apprentice engineer, aged 16, whose nasal cartilage and the skin over it had disappeared under the ulceration of lupus, and who had a patch of lupus still remaining, was taken under my care into the Liverpool Royal Infirmary, where I scraped away the small patch of disease on May 25th, 1887.

The result is shown in Fig. 1, where the upper lip is seen to be scarred, and so deficient as to leave his mouth almost permanently open. To remedy these defects I

FIG. 1. — Taken in August, 1887 Showing defect of nose and upper lip; also the lines of incision in the plastic operation.

FIG. 2.—Taken in November, 1890. Showing final state of new nose and augmented upper lip, twenty-seven years before blindness occurred.

performed rhinoplasty and cheiloplasty on April 27th, 1888, the lines of incision being marked in the illustration, photographed on August 27th, 1887. To enlarge the upper lip the scab left between the nose and upper lip was cut out; the lip itself was freed somewhat to permit its depression to meet the lower lip, and the skin dissected off the nasal bones while remaining attached at both cheek ends to provide vascular pedicles, and stitched to the raw edge of the upper lip, thus making that lip wide and substantial, as shown in Fig. 2. A flap for the new nose was taken from the forehead over the right eye, and having a curved pedicle on the left to permit the flap to be turned down to cover the exposed nasal bones and the rest of the raw surface. Much care was taken to fashion the alae and septum, which gave quite a presentable shape to the new nose on the day of operation.

But this attempt at an approach to elegance failed, as the distant corners of the flap sloughed. All other attachments healed well, and the raw surface on the forehead granulated up quickly. Much trouble was also spent in trying to keep open the nostrils by means of rubber tubes, but this also failed, and the nostrils became permanently closed.

This, however, proved not to be inconvenient, and I found that, as no nasal mucus accumulated, there must have been little or none formed beyond what could easily escape unobserved into the pharynx, the absence of draught and attendant dust apparently keeping the mucous membrane quiescent.

Though the nose and augmented lip never became elegant they answered their purpose, and are well shown in Fig. 2, photographed in November, 1890. This young man became a skilled engineer, and volunteered for foreign service at Chatham Dockyard in 1900, serving as a marine engineer in Bermuda, Nova Scotia, and Newfoundland.

He married in 1905, and lived for a time in the south of England, coming several times to see me when visiting his father in Liverpool.

In September, 1916, he was second engineer in a tug patrolling the North Sea. In July, 1917, I met him in Liverpool, led about by his wife on account of permanent blindness due to glaucoma which had not been remedied by operation in time to save his sight. For this he has since been taken care of in St. Dunstan's, Regent's Park, by which he is enabled to make a living for himself, wife, and family. He has perseveringly served his country, which took him in hand until able to shift for himself, which he does in a country poultry farm.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF DIPHTHEROID SEPTICAEMIA.

THE following case is of interest, as it illustrates an unusual form of infection with a diphtheroid organism.

The patient was admitted to No. 36 Stationary Hospital, Palestine, with a temperature of 104.6° F. The sister on night duty took a blood film from his ear for examination for malaria. The slide was stained by Leishman's stain, and when it was examined many bipolar bacilli were seen. The leucocytes were not evenly distributed, but they were found in clumps with a very large number of bacilli amongst and around them. A second slide was stained by Neisser's method and the bacilli stained like typical diphtheroid bacilli.

I went immediately to the patient, but his temperature had fallen by crisis, and, although I made blood cultures and more blood films, I failed to find any more bacilli. The patient had a septic sore on the right hallux, and from it I obtained a few diphtheroid bacilli, but I failed to get them in pure culture.

There was no possibility of getting two slides contaminated with leucocytes and a *pure* culture of diphtheroid bacilli, the septic sore not yielding a pure culture. Therefore the bacilli must have been in the circulating blood.

This seems to have been a generalized infection with the diphtheroid bacilli of low virulence so common in Palestine. The slides were taken just when the bacilli were being overcome, as is indicated by the clumping of the bacilli with masses of leucocytes and by the fact that the temperature fell by crisis soon after the slides were taken.

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GASTRIC ULCER AFTER GASTRO-JEJUNOSTOMY.

SIR BERKELEY MOYNIHAN, in his interesting paper on gastric ulcer, published in the BRITISH MEDICAL JOURNAL of December 13th, mentions the fact that he has operated on two cases where fresh ulcers have occurred in the stomach after gastro-jejunostomy, and he tells me that since he wrote the paper he has had a third. A few weeks ago I met with a similar case, where persistent and severe pain recurred a few years after gastro-jejunostomy for duodenal ulcer. On exploration, a large chronic ulcer was found surrounding the anastomosis but entirely confined to the stomach, the mucous membrane of the jejunum being quite healthy. I excised the ulcer freely and repaired the stoma.

Such cases as these prove that gastro-jejunostomy alone is not reliable in gastric ulcer, and that it is essential to combine it with excision of the ulcer, or, as Sir Berkeley Moynihan suggests, to perform a partial gastrectomy.

Leicester. F. BOLTON CARTER.

MITRAL STENOSIS IN SOLDIERS.

IN his illuminating paper on mitral stenosis in soldiers (p. 840) Dr. Cotton enumerates causes of breathlessness other than D.A.H. or cardiac failure. We may take it that in any case the exercise tolerance test will be found effective and reliable. No reference, however, is made to the condition of pulmonary emphysema, which, without any discoverable cardiac disability, gives rise to breathlessness after exercise proportionate to the degree of emphysema. I have over and over again noted the frequency with which a slight degree of emphysema is overlooked, especially if no pulmonary symptoms are complained of. In the case of the soldier this condition is far from infrequent, as may be readily understood, and either by itself produces breathlessness after the exercise test, or else makes a substantial contribution to it, when coexisting with D.A.H.

For purposes of accuracy, therefore, any signs of emphysema should be investigated, and the elasticity of the lungs tested.

London, W. A. G. AULD.

Reports of Societies.

INTRATRACHEAL CHLOROFORM.

A MEETING of the Section of Anaesthetics of the Royal Society of Medicine was held on December 4th, 1919, the President, Dr. LL. POWELL, being in the chair.

Mr. CLARENCE MOTT read a paper on intratracheal insufflation of chloroform, based upon 357 cases. He showed that the insufflation method might be expected to suit chloroform particularly well, and he had not been disappointed in his expectations. At first he had worked with varying properties of chloroform and ether together, using them both intrapharyngeally and by the trachea before he arrived at pure chloroform by the trachea. A Vernon Harcourt inhaler containing chloroform was placed between the motor and Kelly's intratracheal apparatus containing ether. Finally, Down Brothers added a second chamber to Kelly's apparatus. A flow-meter has since been added which gives readings up to 30 litres of air per minute, and, thanks to the great kindness of Dr. Waller, Mr. Drew and Mr. Mott have been able to grade the dial on the chloroform tap, showing the actual percentages of chloroform vapour when the motor is delivering 10, 20, 30, or 40 litres of air per minute, with 16 ounces of chloroform in the chamber. The majority of the cases had morphine and atropine, and the catheter was passed into the trachea, whilst anaesthesia was maintained by intrapharyngeal methods. When untoward symptoms supervened—and these were on rare occasions—increase or decrease of the chloroform, more frequent or longer reductions of the air stream to zero, alterations in the volume, or pressure of air stream, or slight withdrawal of the catheter, effected the desired improvement, and at any moment ether or oxygen could be added at will.

Regions.—Of the 357 cases there were 135 intraperitoneal (11 gastro-enterostomy, 10 gall bladder, 10 hysterectomy), 15 limbs, 12 haemorrhoids, 10 kidney, 10 breast amputations, 7 glands of neck, 7 thyroid, 3 bladder, 3 mouth.

Respiratory Complications.—307 cases had no complications; in 28 they were very slight; in 22 they were more serious. One patient contracted pneumonia, and died six days after an operation for hysterectomy; this patient had a cough before operation, which lasted an hour and a half.

Vomiting.—114 cases did not vomit at all; 129 vomited one to three times; 60 vomited four to six times. Children appeared to take the method as well as adults.

Deaths.—There were 8 deaths—none of these could be attributed to the anaesthetic; 2 died from haemorrhage, fourteen hours and six days after operation respectively; 2 from heart failure, thirty-six hours and three days later; 1 from peritonitis (perforated duodenal ulcer); 1 from intestinal obstruction, five days later; 1 from pulmonary embolism, four days later; 1 from pneumonia (mentioned above).

Mr. REGINALD ALCOCK said that complete relaxation was not so uniformly found with any other anaesthetic as it was with intratracheal chloroform. The excursions of the abdomen were almost absent, a great gain in such operations as gastro-jejunostomy. Also there was absence of congestion and of haemorrhagic oozing, and the anaesthetist and apparatus were conveniently distant from the operator in head and neck cases.

Mr. W. C. ALLARDICE had operated some hundred times with the method, the ages of the patients ranging from 9 to 65 years. He had come to value Mr. Mott's administration of chloroform very greatly, but regarded it as a method solely for the expert. Mr. Mott provided him with everything that a surgeon was entitled to ask of his anaesthetist.

Mr. NORMAN PATTERSON pointed out the great value which the method should have in the treatment of malignant disease of mouth and pharynx by diathermy.

Dr. BLOMFIELD regarded Mr. Mott's work as a most valuable confirmation of the work done upon animals to determine physiologically safe percentages of chloroform vapour. He deprecated any general comparison as to the relative safety of chloroform and of ether based upon these three hundred cases.

Dr. F. E. SHIPWAY pointed out that the post-operative results compared unfavourably with those due to intratracheal ether, and he asked where, except in the matter of abdominal stillness, was there any advantage in using chloroform, particularly in mouth cases. He did not

believe that it was a scientific procedure to procure complete muscular relaxation by general anaesthesia alone.

The paper was further discussed by the PRESIDENT, Mr. H. C. VANCE, Mr. ROOD, Dr. SILK, and Mr. C. T. W. HIRSCH. A collection of apparatus designed and used by the late Mr. J. T. Ord was exhibited to the meeting, and an appreciation of him written by Dr. Dudley Buxton was read by the PRESIDENT.

THE DIPHTHEROID GROUP.

AT a meeting of the Liverpool Medical Institution (Pathological Section) held on November 27th, 1919, with the President, Mr. THELWALL THOMAS, in the chair, Dr. J. G. ADAMI, F.R.S., read a paper on diphtheroids. He gave a historical sketch of the research work done towards classifying the diphtheroid group, and pointed out that we were still in a transitional state of knowledge as regards these, in common with the dysenteric, choleraic, meningococcic, coliform, and other groups. Differentiation by the old-fashioned method of staining after culture on Loeffler's blood serum was unsatisfactory; morphology did not safely differentiate the infinite range of variations found by other methods. So far as fermentation reactions could help it was best to employ only four or five (particularly dextrose, dextrin, saccharose, and lactose), but the results from these were suggestive and directive rather than definitive. The development of toxicity for guinea-pigs in a Dean's broth culture, more especially a haemorrhagic adrenal lesion, was the only accurate test, and was recommended for all doubtful cases. He detailed an investigation, directed by himself, of diphtheroid wound infection occurring among Canadian soldiers. Of 306 open and infected wounds, 2 showed true Klebs-Loeffler bacilli and 56 diphtheroids; 2 of these latter gave all the reactions of Klebs-Loeffler, except the virulence test. It was demonstrated that a wound might yield no membrane and yet harbour virulent diphtheria, or develop membrane and yet be merely diphtheroid. Dr. Adami considered it probable that true relationships would eventually be defined by complement fixation tests, and suggested, as a further method likely to clarify the field, the adoption of sensitization reactions, a weakly form being used to sensitize the guinea-pig to the inoculation at a later date of the strain under investigation.

Spirochaetes in Bronchiectasis.

At a subsequent meeting of the Section held on December 18th, with Dr. HUBERT ARMSTRONG, Vice-President, in the chair, Mr. KEITH MONSARRAT read a note on two cases of massive calculous deposit in the urinary channels, which had developed in soldiers while under treatment for fractures. Radiographs showed the development and retrogression of the calculi. The speaker was of the opinion that such cases did not belong to the domain of surgery, but could be cured by medical measures and exercise. Mr. NEWBOLT recounted a similar case where cure resulted after continuous treatment with potassium citrate. Professor E. E. GLYNN contributed a paper on the presence of spirochaetes in the sputum of a case of bronchiectasis. The sputum was airless and purulent, but not nummulated, and contained round yellow granules consisting of bacteria and spirochaetes, the latter sometimes in enormous numbers. It seemed clear that these granules were formed not in the mouth but in the lung, and formed an airless medium wherein spirochaetes could develop. It was suggested that they were a variety of Dittrich's plugs, which would probably be found to contain spirochaetes if examined with that possibility in view. Graphs of the morphological features of these spirochaetes, obtained by the measurement of large numbers of camera lucida drawings, were shown and compared with graphs of other spirochaetes. They supported the suggestion that the condition was not the chronic stage of a previously acute bronchial spirochaetosis, but was a secondary mouth infection. Professor Glynn was inclined to the view that the spirochaetes in the granules were pathogenic—at least to the extent of increasing the severity of the disease. A similar condition had been found in a second case of bronchiectasis.

CLINICAL DEMONSTRATION.

A CLINICAL meeting of the Portsmouth Division of the British Medical Association was held in the library of the Royal Portsmouth Hospital on December 3rd, 1919, with Dr. A. E. MARWOOD in the chair. Mr. C. P. CHILDE showed a case of excision of the hip-joint in a lad, done ten years ago, with excellent functional result; the lad is now about 18 years of age and can walk well—two miles easily. Also a case of congenital deformity of the wrist-joint due to paralysis of the extensor muscles of the forearm, treated by shortening the extensor tendons of the hand and fixing the wrist-joint in good position by excision of the joint. Mr. C. A. S. RIDOUT showed a case of sarcoma of the ethmoidal region for which both external operation through the orbit and internal operation through the nose had been performed with satisfactory result, the patient being in good health and at work again several months after operation. Also a case of acute frontal sinusitis treated by external operation preceded by submucous resection of septum nasi which was blocking the affected side. Radiographs of various affections of the nasal sinuses, with note on the value of radiography in diagnosis of sinusitis, were shown by Mr. RIDOUT and Mr. E. BEVERLEY BIRD, D.S.O. Dr. A. CAMBELL showed cases of (1) tabetic fractures, (2) gummatous synovitis of knee, (3) congenital specific periostitis combined with optic atrophy in a boy 12 years of age. Radiographs illustrating the foregoing cases were also shown. Dr. L. COLE-BAKER read the clinical notes of three cases of ectopic gestation presenting unusual features for diagnosis. Dr. R. J. LYTLE read notes on a case of pernicious anaemia treated by intravenous novarsenobenzol with most marked and rapid recovery. Dr. D. A. SHEAHAN read a note on a case of fracture of femur in a man aged 78. Lastly, Mr. DINNETT showed for Surgeon Admiral Eames the radiograph of a case of gunshot wound of spine followed by expectoration of bone fragments.

RESULTS OF HYSTERECTOMY FOR FIBROIDS.

AT a meeting of the North of England Obstetrical and Gynaecological Society held in Manchester on December 19th, 1919, Dr. J. W. BRIDE read a paper on the after-results of the removal of one or both appendages in hysterectomy for fibroids. Three hundred cases operated on at St. Mary's Hospital, Manchester, between the years 1909 to 1913 inclusive, for fibroids or, in a few instances, for chronic metritis, had been circularized. Dr. Bride based his paper on the 231 replies received. The questions put varied in importance, and included the following: General health, temperament, headaches, digestion, nervous stability, pain, capability for work, nutrition as regards fat, hot flushes, sexual inclination and comfort, and memory. The first six of these appeared to favour the radical operation, but, with the possible exception of pain, the distinction was not very marked. The replies to the next four questions, particularly as regards flushings and sexual inclination and comfort, suggested the advantage of a conservative operation. The last question put produced indeterminate replies. In general there appeared to be very little to choose between the two operations. It was noticeable that flushings, both immediate and remote, were complained of in a good number of cases where a conservative operation had been done. Drs. DONALD, GEMMELL, and FOTHERGILL instanced objections to a conservative operation, the last-named observing that, as the ovary after hysterectomy ceased to function at the end of two years, it did not seem worth while to conserve it for that short period. He suggested as a sound rule for all operations involving removal either to leave a "working set" or to make a clean sweep.

AN exhibition of radiographic prints by members of the Röntgen Society will be opened at the house of the Royal Photographic Society, 35, Russell Square, W.C.1, on January 6th. At 7 p.m. on that day Dr. George Rodman will give a lecture on "The *x* rays approached from the popular standpoint." The exhibition will be open daily from 11 to 5, and will close on February 7th. The Röntgen Society will hold its general meeting on January 13th, at 7 p.m., when the exhibition will be open in the evening and Major G. W. C. Kaye, D.Sc., will open a discussion on radiology and radiometallography. On February 26th the Society will hold a joint meeting with the Electro-Therapeutic Section of the Royal Society of Medicine to discuss electric apparatus in relation to *x* rays; the meeting, which will be held at the Institution of Electrical Engineers, will begin at 5 p.m. and conclude at 10, with an interval of an hour and a half for dinner. The Silvanus Thompson Memorial Lecture will be given by Professor W. H. Bragg, F.R.S., probably in March.

Reviews.

INGUINAL HERNIA.

MR. PHILIP TURNER'S small book upon *Inguinal Hernia; the Imperfectly-descended Testicle and Varicocele*,[1] aims at an improved technique in the now very commonly performed operations for these conditions.

His operation for inguinal hernia is based upon the generally accepted view that removal of the sac is the essence of cure. He points out, as has already been pointed out by Bird of Melbourne, and Chiene, that the sac can be dealt with—can in fact be completely removed—without division of the decussating fibres of the external oblique insertion; and that in suitable cases it is unnecessary to suture the conjoined tendon to Poupart's ligament. The method is probably more widely used than Mr. Turner seems to think, and, on the other hand, for a book with the primary title *Inguinal Hernia*, too little attention is paid to the large class of hernias for which such an operation is inadequate.

The section devoted to the imperfectly-descended testicle is written with judgement and lucidity, whilst the operation advocated is an ingenious attempt to overcome one of the commonest sources of failure—retraction of the organ up to, or towards the external ring. Mr. Turner's method is to displace the testicle through the scrotal septum into the opposite half, relying upon the elastic character of the septum to permit of passing the organ through a hole smaller than itself, and to exert, together with the weight of the other testicle if present, a continuing though slight strain upon the tense parts of the cord. Whilst the likelihood of success is greater in unilateral cases, it has been found effective in bilateral, the testicles being transposed.

The improvement he advocates in the performance of the varicocele operation is the substitution for the usual method of raising the testicle—namely, approximation of the divided ends of the ligated veins—of shortening of the sheath upon which the testicle normally depends for suspension. He does this very simply by suturing transversely the longitudinal incision made in the sheath for exposure.

In each section Mr. Turner devotes a chapter to results, early and late; although, as is generally the case, he has to lament an untraceable portion of each series, it is obvious that he has every right to be satisfied with the outcome of the technique he describes.

It is a good book, and its form so pleasant to the literary mind that perhaps the author will forgive a comment upon his unnatural fondness for the split infinitive.

THE PATHOLOGY OF THE PERITONEUM.

INTEREST in the peritoneum is still as lively as it was twenty years ago, and, although many of its functions are now definitely settled and the treatment of its diseases established, many matters concerning it remain debatable.

Dr. HERTZLER, of Halstead, Kansas, presents us with two large and profusely illustrated volumes, entitled *The Peritoneum*,[2] dedicated to its anatomy, physiology, and pathology. This vast subject would tax the resources of any man, and the author may be said to have emerged from the struggle with credit. The first volume is devoted to the histology, physiology, development, and gross anatomy of the peritoneum. Some parts of this are definitely good, notably the sections on the so-called "stigmata and stomata," the genesis of adhesions, and the functions of the omentum. Other parts, where clear direction from one so well acquainted with the literature would have been of the greatest value, go haltingly. In these places the reader is frequently tripped up by a series of proper names, many of which could have been left out without injustice, as a feature of both volumes is the bibliography, from which there are, however, curious omissions.

In Vol. II the clinical varieties of peritonitis are discussed first under a general heading and then as produced by diseases of various organs (appendix, gall bladder, tubes, and so on), concluding with a chapter on peritoneal tumours. All this is well enough done, differential diagnosis being very fully discussed. As might have been expected, the work is uneven in quality and the literary style at times obscure. This is particularly the case in the more academic portions where clear and interesting writing is so important and, be it said, so difficult. At other times Dr. Hertzler expresses himself racily and well. An innovation in this respect, which perhaps gives the key to the whole work, is the legend to Fig. 47, "Aeroplane view of the pelvis," this being the ordinary view from above. These volumes are, in a way, an aeroplane view of the author's subject. We do not get to grips but see it all float past us pleasantly enough, some prospects more arresting and more pleasing than others. We alight at the end of our journey with a widened outlook but without much detailed knowledge.

The book is well produced, furnished with an index, and clearly illustrated by Mr. Tom Jones, some of whose drawings are particularly satisfactory.

GYNAECOLOGY.

DR. BETHEL SOLOMONS has essayed a difficult task in his *Handbook of Gynaecology*[3]—namely, to write a short book for students which, without being a mere cram book, will help them in their examinations and be of some use to them in their earlier years in practice. It is easy to criticize such books in a superior way and to find fault with them, but the fact remains that they are a help and comfort to final year students; and that being so, it is satisfactory to find one clearly written and presenting such sound teaching as this. The early sections are devoted to a brief description of the special anatomy of the female pelvic organs. On the first page Dr. Solomons gravely points out that it is well for those who have not studied Latin to know that "labium" is the correct term when speaking of *one* of these parts. It is therefore a little unfortunate that, ten pages on, he himself should write of the "ligament*a* transversal*es* colli." Genders have their value as well as numbers! The description of the vaginal and bimanual examination postulates the use of a gynaecological chair, which is such a characteristic feature of Dublin practice. There are one or two points in regard to which improvements might be made. There is, for example, a list of prescriptions at the end of the chapter on menstrual disorders with no particular indication as to the special type of case in which each is useful—with, indeed, no direction but that the prescriptions should be given only after a diagnosis has been made! Again, the author teaches inflammation of the ovaries as a separate entity, and, not content with that, divides the acute form into the three varieties—cortical, interstitial, and parenchymatous. Does Dr. Solomons expect his students to make an intelligent diagnosis of, say, acute interstitial ovaritis, and if so, is the exact diagnosis of any practical advantage? We do not find that the differential diagnosis is explained in the text, and the wisdom of burdening the student with a piece of very doubtful information may be questioned. It is just the sort of thing that an unwary student would attempt to memorize. The book is freely illustrated and the figures are mostly good; it will certainly prove useful to students, and we hope to see it made still better in the subsequent editions which we prophesy for it.

Professor HIRST'S long experience as a gynaecologist, as a teacher, and as an author, have enabled him, with the adequate assistance of Mrs. Chase, his artist, to make his *Atlas of Operative Gynaecology*,[4] a most attractive volume, full of instruction for those making their first ventures into the field of gynaecological surgery. The publishers have done their share of the work equally well, and are to be congratulated upon the general appearance of the book. The opening chapters deal with such general matters as

[1] *Inguinal Hernia; the Imperfectly-descended Testicle and Varicocele.* By Philip Turner, M.S., F.R.C.S. London: J. and A. Churchill. 1919. (Med. 8vo, pp. viii + 104; 22 figures. 9s. 6d. net.)

[2] *The Peritoneum.* Vol. I: *Structure and Function in Relation to the Principles of Abdominal Surgery.* Vol. II: *Diseases and their Treatment.* By Arthur E. Hertzler, M.D., F.A.C.S., Surgeon to the Halstead Hospital, Halstead, Kansas. London: Henry Kimpton. 1919. (Med. 8vo, pp. 870; 230 figures. Two vols. 50s. net.)

[3] *A Handbook of Gynaecology.* For the Student and General Practitioner. By Bethel Solomons, B.A., M.D.Dub., F.R.C.P.I. London: Baillière, Tindall, and Cox. 1919. (Demy 8vo, pp. xii+236; 196 figures. 10s. 6d. net.)

[4] *An Atlas of Operative Gynaecology.* By Barton Cooke Hirst, M.D., Professor of Obstetrics, University of Pennsylvania. Philadelphia and London: J. B. Lippincott Company. 1919. (Med. 4to., pp. xi+292; 164 plates; 46 figures. 30s. net.)

the operating room, the table, instruments, the preparation of the patient, and operative technique. The first subject is illustrated by a chart of the ground plan of the new operating clinic at the Maternity Hospital of the University of Pennsylvania, and will prove of great interest to those who are interested in schemes for the building or reconstruction of similar institutions. Then follow sections dealing with the operative treatment of diseases peculiar to women, and covering the whole field from operations on the breast to pubiotomy and an operation for anus vestibularis. Each operation is illustrated by a series of coloured drawings of the more important steps, and this graphic teaching is supplemented by a short running commentary in the text. On the book itself we would offer only two criticisms. One is that some of the drawings are unnecessarily complicated by forceps and threads. This is generally the result of trying to show in one figure what are really two steps in an operation. The second is that the restriction to methods of operating approved by and practised by the author must, with all respect to him, diminish in some degree the value of the volume in other schools. In no two schools are exactly the same methods followed, although the fundamental plans of the operations are the same. We are not familiar with any other atlas of a similar nature, except Liepmann's, and we cordially commend Professor Hirst's work to the notice of junior specialists and of those general surgeons whose work occasionally leads them into the recesses of the female pelvis.

A MEDICAL HISTORY CLUB.

THE fifth volume of the *Proceedings of the Charaka Club*,[5] which was founded in 1901, contains lists of the present members and of articles in the previous volumes showing that it is devoted to medical history and scholarship. The twenty-three present members are many of them well known to English readers: Professor Harvey Cushing, Dr. F. R. Packard, Dr. Fielding Garrison, and Dr. L. S. Pilcher being famous book collectors. Many of the titles in the earlier issues are attractive, such as "The Medicine of Horace" and "The Evil Spoken of Physicians," both by Dr. Dana, and some, notably Sir William Osler's "Frascatorius" and the late Dr. S. Weir Mitchell's "Books and the Man," are familiar favourites.

The opening article in the present volume, on "The Military Surgeon in the Middle Ages," contains three reproductions of the quaint drawing "the Wound Man," a figure showing the various wounds caused by the weapons of the time; the author, Dr. L. S. Pilcher, acknowledges his indebtedness to Sir D'Arcy Power and Mr. Stephen Paget for much of the interesting material he presents. Dr. C. L. Dana's contribution on "Military and Civil Surgery among the Ancient Romans" is well illustrated by figures of instruments from Pompeii and Herculaneum. Dr. Fielding Garrison's essay on "The Gods of the Underworld in Ancient Medicine" recalls his article on the "Greek Cult of the Dead and the Chthonian Deities" in *Annals of Medical History* (*vide* this JOURNAL, January 5th, 1918); from consideration of Hippocrates and of the debt of Beethoven, Brahms, and the great Russian composers for their emotional effects to the Lydian and Phrygian modes, he concludes that in nearly all the activities of the mind the Greeks are still our elders and our betters. There are two psychological studies: "The Confession," by Dr. Pearce Bailey, gives a tragic dialogue between an innocent girl and her lover, the belief of the lover that the girl committed a murder so convincing her that she stabs herself at the moment that her supposed victim turns up unhurt. The other, on "Magic Above and Below," by Dr. Ely Jelliffe, is based on Chesterton's well known play at the Little Theatre, and *inter alia* deals with repression. Dr. A. P. Gerster writes about the oldest known Latin version of Aristophanes and two academic curmudgeons; and the tastefully got up volume, which is somewhat unusual in being without a revealed editor, closes with Dr. Dana's "Eminent Physicians, a Statistical Study."

[5] *The Proceedings of the Charaka Club.* Vol. V, 1919. New York: Paul B. Hoeber. 500 copies published for members and their friends. (Roy. 8vo, pp. 101; 17 figures; 4 dollars net.) Copies of Volumes III and IV can still be obtained, at 4 dollars a volume.

NOTES ON BOOKS.

THE second edition of Dr. CARTER'S *Diet Lists of the Presbyterian Hospital*[6] provides the medical man with a first-rate guide for the feeding of patients and convalescents. Special diets for typhoid, enteric, nephritis, and many other diseases are set out, and special diets poor in purin or calcium are also described, with notes on special dishes. The book is well arranged and thoroughly practical, and the chapter on diets in diabetes has been thoroughly brought up to date. It may be recommended to the attention of not only hospital physicians, but also general practitioners of medicine and those who have to order the food and regimen of sick people.

The late Dr. E. WEIN'S book on the diagnosis and treatment of tuberculosis by antitoxins[7] deals with the use of Marmorek's antituberculosis serum and K. Spengler's "I.K." in all sorts of affections that he describes as primarily or secondarily tuberculous. The number of such affections he finds to be very large; he includes among them the malnutrition, sleeplessness, and maldevelopment—probably rickety?—of children, Basedow's disease in most instances, most cases of migraine, dysmenorrhoea, nocturnal enuresis, and so forth. The connexion between tuberculosis and these and other affections is proved, if Dr. Wein's argument be accepted, by the fact that patients suffering from them benefit or are cured by "I.K." treatment. Thus he records (p. 337) a family in which he treated with brilliant success a tuberculous mother, cured a father with chronic articular rheumatism, cured a grandmother who had absolute insomnia, and cured a daughter of nocturnal enuresis, all by "I.K." injections; it may be added that the treatment in the last case was continued for twenty-two months, with intermissions. The book is full of painstaking argumentation, repetition, and detail, but not, perhaps, entirely convincing.

Professor FRÄNKEL'S textbook of medical chemistry[8] gives an account of the chemistry of the substances met with in physiology, pathology, and forensic medicine, with methods for their preparation and estimation. The volume appears to be one for laboratory use by laboratory experts.

Professor FISHER of Yale has recently republished a little book[9] written twelve years ago, in which he related experiments showing, as he concludes, that slow mastication with a diet containing little protein increased bodily endurance. It may be read by all who are interested in food economy, and read with profit.

The *American Frohse Life-size Anatomical Charts*[10] are seven large well drawn and beautifully printed maps of the human anatomy, containing seventeen separate charts. These depict the skeleton, the muscles, the nervous and circulatory systems, the circulation, the viscera, and other important structures. They may be described as most successful in design and in achievement, and have been drawn or revised by MAX BRÖDEL, the well-known illustrator who is professor of anatomical drawing in the Johns Hopkins Medical School. Diagrams such as these are of the greatest service to all who have to teach the elements of anatomy and physiology to nurses or school children, and to such they may be confidently recommended.

In a little book on *Christianity and Christian Science*,[11] M. CARTA STURGE makes out as good a case for Mrs. Eddy's so-called Christian Science as can be made out, no doubt on the principle that it is unreasonable to throw away the child with the bath-water. As rescued from the flood the child is certainly a puny specimen.

[6] *Diet Lists of the Presbyterian Hospital, New York City.* Compiled, with notes, by Herbert S. Carter, A.M., M.D., Consulting Physician to the Lincoln Hospital, etc. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company, Limited. 1919. (Post 8vo, pp. 165. 6s. net.)

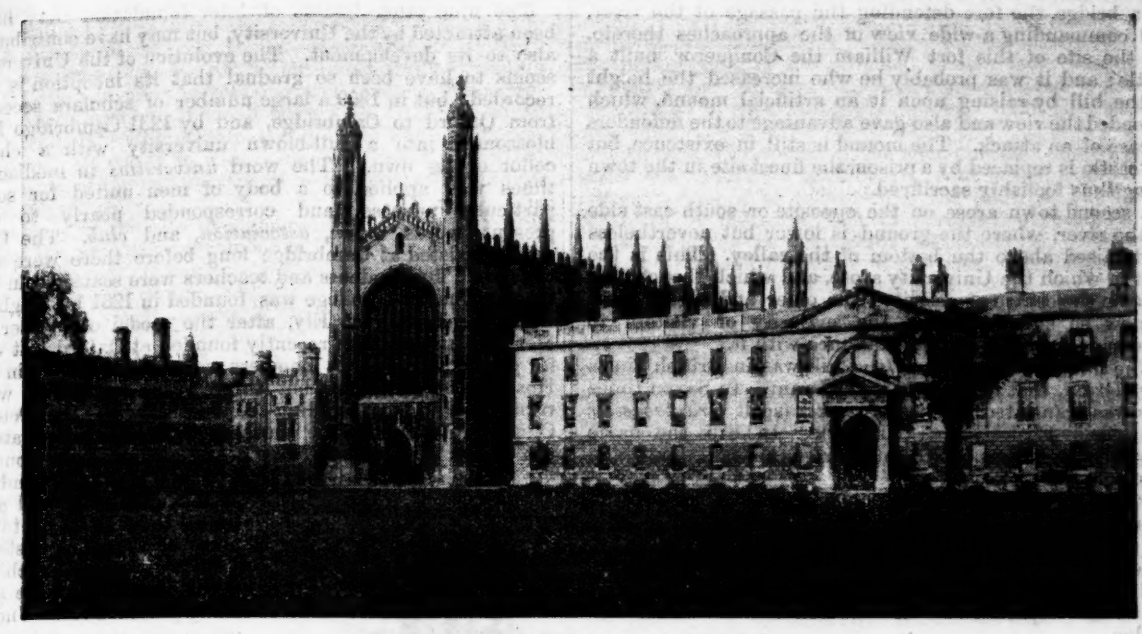
[7] *Feststellung und Behandlung der Tuberkulösen Infektion mittels Antitoxischer Heilkörper.* By Dr. Emanuel Wein, Dozent an der Universität in Budapest. Berlin and Vienna: Urban and Schwarzenberg. (Cr 4to, pp. 608. M. 25.)

[8] *Praktikum der medizinischen Chemie.* By Dr. Sigmund Fränkel, Professor der medizinischen Chemie an der Universität in Wien. Berlin and Vienna: Urban and Schwarzenberg. (Med. 8vo, pp. 448; 38 figures, 2 plates. M. 18.)

[9] *The Effect of Diet on Endurance.* By Irving Fisher, Professor of Political Economy in Yale University, etc. New Haven: Yale University Press. London: H. Milford. (Cr. 8vo, pp. viii+55. 2s. 6d. net.)

[10] *The American Frohse Life-size Anatomical Charts.* With key. Chicago: A. J. Nystrom and Co.; Edinburgh: W. and A. K. Johnston, Ltd. (£11 net the set.)

[11] *Christianity and Christian Science: A Contrast.* By M. Carta Sturge. London and Edinburgh: T. C. and E. C. Jack, Ltd.; T. Nelson and Sons, Ltd. 1919. (Fcap. 8vo, pp. 123. 1s. 3d. net.)



BACK OF KING'S AND CLARE COLLEGES.

EIGHTY-EIGHTH ANNUAL MEETING

of the

British Medical Association.

CAMBRIDGE, 1920.

GATE OF HONOUR, CAIUS COLLEGE.

THE eighty-eighth Annual Meeting of the British Medical Association will be held at Cambridge next summer, under the presidency of Sir Clifford Allbutt, K.C.B., F.R.S., Regius Professor of Physic in the University, who will deliver his address on the evening of Tuesday, June 29th. The sectional meetings for scientific and clinical work will be held on June 30th, July 1st, and July 2nd, the mornings being given up to discussions, and the afternoons to clinical and laboratory demonstrations. There will be twelve Sections, of which five will meet on each of the three days, and the remainder each on one day. The Annual Representative Meeting will begin on June 25th. The annual dinner has been fixed for July 1st, and on the evening of July 2nd Dr. G. S. Graham-Smith, F.R.S., will give the popular lecture. Saturday, July 3rd, the last day of the meeting, has been set apart for excursions to places of interest in the neighbourhood. We publish below the first of a series of historical and descriptive notes on Cambridge, which it is hoped will prove of interest to members of the Association.

ORIGIN OF THE TOWN AND UNIVERSITY.

In the minds of most people the idea of Cambridge is associated only with that of a university, and it is a surprise to them to learn that the university was a comparatively late development in a town which for centuries, even for ages, had been a centre of traffic and commerce. Its written history begins in Saxon times; but its existence as a centre of population in Roman, British, and prehistoric times is evident from the quantities of relics of all ages which have been and continue to be dug up in and around the town. It owed its origin and its importance in ancient times to the advantage of its site; for when the Fen-land was an impassable swamp, all the land traffic between Eastern Britain and the Midlands had to pass southward through Cambridge, where the ground was dry on both sides of the river. In addition, the navigable river Grant (now called the Cam) placed the town in communication with the sea and with the group of rivers that flow into the Wash.

Even now, though the fens are drained and are crossed by several roads, Cambridge is still an important centre of traffic; for four great railway systems meet here in a single station, from which the lines radiate to East Anglia, London, the Midlands, and the North.

The town probably originated as a fort on the north-west side of the river, where the ground rises rather steeply to an altitude of about 60 ft. above the valley. A road crossed the river at this point, doubtless by a ford at first, but later

by a bridge, the fort defending the passage of the river, and commanding a wide view of the approaches thereto. On the site of this fort William the Conqueror built a castle; and it was probably he who increased the height of the hill by raising upon it an artificial mound, which extended the view and also gave advantage to the defenders in case of an attack. The mound is still in existence, but the castle is replaced by a prison, the finest site in the town being thus foolishly sacrificed.

A second town arose on the opposite or south-east side of the river, where the ground is lower but nevertheless well raised above the bottom of the valley. This is the part in which the University arose, and which thenceforth became the centre of activity: the older and higher town is now so suburban that the majority of visitors to Cambridge never make acquaintance with it.

The name of the fort on the hill was in British times *Caer Grant*, that is, Fort by River Grant. In Saxon times this was translated as *Granta-ceaster* (spelt *Grantacaestir* in Beda's Ecclesiastical History).[1] In 875 the name *Grantabryege*, that is, Granta-bridge, appears and from this time the history of the town is continuous. The change of name is taken to indicate that at some time between the seventh and ninth centuries the ford was replaced by a bridge.

In 1142 a remarkable change of name appears, the town being called *Cantebrugge*; from that time till 1400 the two names are used contemporaneously, with several minor varieties of spelling, such as *Grauntebrugge* and *Cauntebrigge*; after 1400 the forms with initial *C* alone survived, giving the form Canbrigge, then Cambryge, and lastly the present day spelling.

The history of the name is of exceptional interest, and has been very thoroughly discussed by Professor Skeat[2] and by Mr. Arthur Gray,[3] Master of Jesus College. The change from initial *Gr to C* is contrary to all precedent; so much so that Mr. Gray holds that the name *Cantebrugge* had an independent origin, being possibly the name of a second bridge over a collateral arm of the Granta, for it is known that the channel of the river was formerly subdivided.

The name "Cam" for the river is of modern invention, and is apparently a bit of university slang. It first appears, after 1500, as *Camus* in university Latin. The English form *Cam* does not appear until about 1600. Before that time the river was always known as the *Grant* or *Granta*. Thus the name of the river, like that of the town, is of peculiar philological interest.

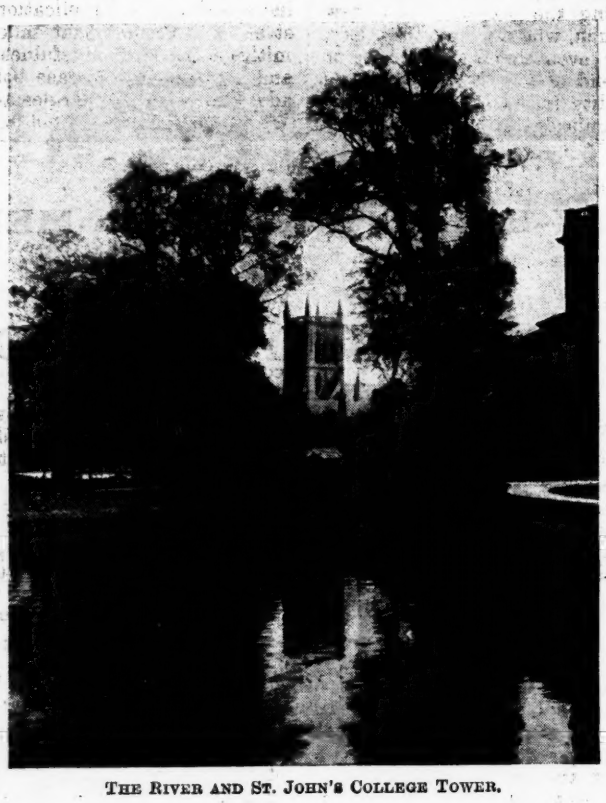
So far as is known, learning was first represented in Cambridge by the monastic houses, of which a considerable number existed in the town. Four of them were founded before the middle of the twelfth century—namely, Barnwell Priory, 1092; the Nunnery of St. Radegund, 1133; the Hospital of St. John, 1135; and the Sturbridge Hospital for Lepers, about 1125. It may be noted that these houses provided the opportunities for the study of divinity and medicine (and may we add, for the education of women?), and in connexion with them, or under their influence, the University may have arisen.

[1] This name has been transferred in recent times to the village of Grantchester, formerly called *Granteseta*, two miles south of Cambridge.

[2] *Place-names of Cambridgeshire*. Published by Cambridge Antiquarian Society.

[3] *Dual Origin of the Town of Cambridge*. Same publishers.

The nine other houses of later foundation may have been attracted by the University, but may have contributed also to its development. The evolution of the University seems to have been so gradual that its inception is not recorded; but in 1209 a large number of scholars seceded from Oxford to Cambridge, and by 1231 Cambridge had blossomed into a full-blown university with a chancellor of its own.[4] The word *universitas* in mediaeval times was applied to a body of men united for some particular purpose, and corresponded nearly to our present words *union*, *association*, and *club*. The University existed at Cambridge long before there were any colleges. The students and teachers were scattered in the town. The first college was founded in 1281 by Hugh de Balsham, Bishop of Ely, after the model of Walter de Merton's college, then recently founded at Oxford. It was for graduates only; its members were at first lodged in the Hospital of St. John, but three years later they were transferred to a building connected with St. Peter's Church, just outside the southern or Trumpington gate of the town. The college was hence called "Peter-house." The non-graduate members of the university still continued to lodge in the town, many of them in "hostels"—institutions in which the needs of students were specially provided for. Undergraduates were not generally received into colleges until the sixteenth century; then the hostels, which had been numerous, gradually ceased to exist, or were annexed to the colleges. The further development of the university and the colleges will be dealt with in a future number of the JOURNAL.



THE RIVER AND ST. JOHN'S COLLEGE TOWER.

SITUATION AND CLIMATE OF CAMBRIDGE.

It is necessary to disabuse the visitor of the common misconception that Cambridge is situated in the fens. The town stands on a dry platform, which extends from the foot of the chalk downs on the south to the borders of the fen on the north. It is well raised above flood level—for example, the railway station is 30 ft. and the north-west town (or Castle end) 60 ft. above the river. Through the dry platform the river flows in the midst of a shallow depression of the land of varying width. In the town this depression is only a few yards wide: its deep peaty soil is favourable to the growth of trees, hence the splendid timber in the College Backs, which are laid out on the depression and its gently sloping banks. The river formerly meandered in multiple and changeable channels through this low ground, but in its present form it is canalized, widened, and straightened.

Below the bridge from which the town was named the aforesaid depression gradually widens towards the fens, but high ground occurs on one side or the other of the river at least as far as Fen Ditton, three miles north-east of Cambridge. From thence to Ely the fen occurs in patches divided by dry areas, and only beyond Ely does the open fenland begin. Thus the site of Cambridge is always dry; there is next to no floodland adjacent to it, and the fen does not begin until three or more miles to the north.

The immediate neighbourhood of the town is neither hilly nor level, but merely tame; its chief defect is not flatness but lack of trees, for the ground is kept clear for agricultural purposes, as it is some of the best wheat land in England. But where planted with trees or laid out in

[4] A. F. Leach, *Mediaeval Schools of England*.

gardens the tame country is beautiful for its fertility. Three miles to the south, east, and west of Cambridge the chalk downs begin, and though their altitude is very moderate (mostly under 300 ft., but occasionally exceeding 400 ft.) their scenery is pleasing and characteristic, consisting of a number of small steep hills bounding broad fertile valleys. Where there are no high hills a moderate elevation commands a wide view, and hence the extent and beauty of the panoramas are notable features of South Cambridgeshire.

Not only is the site of Cambridge dry, but the town is within the area of least rainfall in England, and it seldom suffers from fog. It has an abundant supply of pure water from the chalk downs, and its air is clean and free from factory smoke, except when the wind blows from London. It has thus the physical conditions required to make a healthy town, and the Registrar-General's returns show that its standard of health is high. And yet it is fashionable to speak of Cambridge as "relaxing," none being more prone than the university folk to cry stinking fish in this respect. But why should they do so? The explanation is that in a university town the work is abnormally concentrated during the terms. For a few weeks everybody does too much, whether in work, play, eating, drinking, smoking, or even domestic service or shopkeeping, so that by the end of term everybody feels done up, and blames the locality instead of the mode of life. Those inhabitants of Cambridge whose lives are not subject to university stress find the town very healthy and bracing. Even among the university men the rarity of serious illness is notable; and although at the beginning of each term the students pour into the town from thousands of homes, with as many contingencies for importation of infection, nevertheless infectious maladies are not prevalent among them. A tacit acknowledgement of the healthiness of Cambridge is its increasing popularity as a residential town, which is evident from the many good private houses which have recently been built in its suburbs.

PREVENTION OF INFLUENZA.

MEMORANDUM BY THE MINISTRY OF HEALTH.

IN view of the possibility of a further outbreak of influenza this winter the Ministry of Health has been studying the measures which should be taken to prevent the spread of infection and lessen mortality from the disease. The memorandum on the prevention of influenza which was issued by the Local Government Board in February last, and noticed in our issue of March 1st, p. 248, has accordingly been revised.[1] The introduction gives a brief account of the nature and extent of previous epidemics, together with a statistical note on the three waves of the epidemic of 1918–19. The difficulty in securing a continuous record of the occurrence of true influenza is given as one of the factors which have made it impossible to forecast with any confidence the arrival of the next epidemic wave. The Ministry has taken measures to obtain intelligence on the subject from various sources, and these data are constantly reviewed. There is at present, however, no sign of the emergence of a fourth wave to which serious importance can be attached. Nevertheless, past history suggests the need of being prepared for the possibility that a further definite epidemic wave period may before long be encountered.

Research into the causation of influenza, into its spread in epidemic form, its pathology and its remedy, has been energetically pursued by many workers in this and other countries. Steps have been taken by the Ministry of Health to keep in touch with the results of this research, and to take some part in epidemiological inquiries. The main difficulty, however, remains. As yet we do not know the nature of the living virus to which this highly infectious disease is due, and the laboratory has not yet furnished a specific form of treatment or of protection. Although in a period of world-wide prevalence exposure to infection can hardly be avoided, it is yet the duty of the individual, so far as in him lies, to do the best for himself in case of an attack and also to protect others. It is likewise the duty of public health authorities to take all possible steps during an epidemic to lessen the opportunities of infection, to assist in the treatment and nursing of individual cases, and to help to mitigate the hardships arising when several members of a household are attacked at one time. The memorandum accordingly restates for the information of the public some of the principal known facts regarding influenza, and reviews the experience gained by local authorities in their attempts to deal with the recent outbreaks.

With regard to causation, the memorandum shares the belief that Pfeiffer's bacillus (*B. influenzae*) cannot on present evidence be regarded as the essential causative organism of influenza, but for present purposes it is looked upon as an important secondary or coincident agent responsible for many of the fatal complications of influenza. Since infection is known to be conveyed by the secretions of the respiratory surfaces, overcrowding of every kind should obviously be avoided so far as this can be done. The evidence collected by the Ministry of Health tends to show that in civilian populations acute and temporary overcrowding in trains, trams, omnibuses, and places of entertainment is a more important factor in the spread of epidemic influenza than overcrowding in the home. The dangers of influenza are, of course, greatly increased by the complications, and the memorandum lays stress on the point that much can be done to avoid or to mitigate these: "Carefulness does undoubtedly decrease and carelessness increase both sickness and death." The advice as to throat gargles and nose douching is repeated. While the public are not advised to make general use of face masks, it is recommended that these should be worn by all attending the sick.

Vaccine Prophylaxis.

So long as the primary cause of influenza remains uncertain, it follows that no form of inoculation can be guaranteed to lessen materially the incidence of the disease; but something may perhaps be done to mitigate the severity of the infection and to diminish its mortality by raising the resistance of the body against the chief secondary invaders, including provisionally under this term the Pfeiffer bacillus. There appears to the Ministry to be some reason to believe that a standard polyvalent vaccine prepared from strains of Pfeiffer's bacillus, pneumococcus and streptococcus, does reduce very materially the liability to complications and the risk of death. It is therefore regarded as a measure of precaution which it would be unwise to neglect. The bacteriologists of the Medical Research Committee believe that in the previous Local Government Board vaccine the proportion of Pfeiffer's bacillus was too small, and that more favourable results might follow the use of a vaccine in which this micro-organism forms the dominant constituent, and of which a much larger dose is given. The Ministry has accordingly made arrangements for the preparation of a considerable quantity of prophylactic vaccine made from the new formula. This will be issued, in bottles of 25 c.cm. each, to medical officers of health for distribution on demand and free of charge to medical practitioners in their districts, who will be expected not to charge their patients for the vaccine used. Supplies of the vaccine should be available this week. It will be distributed from the Government Lymph Establishment, Colindale Avenue, The Hyde, London, N.W. 9; each bottle will be accompanied by a form on which certain desired particulars should be recorded by the doctor. The Ministry further proposes, where this seems possible, to arrange for the preparation of vaccines in selected localities from the strains of microbes associated with local cases of influenza.

The precautions to be taken by the individual when attacked are recapitulated: He or she should go to bed at once and remain there under medical advice until all fever has gone for two or three days. Recovery should be fully established before returning to work. "No drug has as yet been proved to have any specific curative effect on influenza, though some may be useful in guiding its course and mitigating its symptoms."

Action by Sanitary Authorities.

The prevention by quarantine of the importation of influenza from abroad is dismissed as impracticable. Health authorities should distribute information to the public by leaflets, posters, notices, and lectures; they are specially urged to make widely known full and exact information as to the local facilities provided in each

[1] Memo. 2/Med., shortly to be obtained through any bookseller, or from H.M. Stationery Office.

district. Details, for instance, should be given of how to apply for nursing assistance, special arrangements for providing domiciliary medical attendance, how to apply for home help for a stricken household, special arrangements for public kitchens and crèches, hospitals available for sudden or severe cases, ambulance or first aid service available.

After weighing all the considerations the Ministry has decided that it is not advisable to make influenza compulsorily notifiable throughout the country; but in some places it may be possible to arrange usefully with local practitioners for voluntary notification to the medical officer of health of all cases in which the aid of the local authority is needed, whether in the form of nursing, home help, or institutional treatment. Acute primary pneumonia and acute influenzal pneumonia are now compulsorily notifiable in all districts in England and Wales. The memorandum is cautious with regard to the value of such measures as closing schools, at least in populous centres. Permanent through ventilation of public vehicles, says the memorandum, should be generally advocated and adopted. The routine disinfection of premises and of articles used by patients is not called for, but the sickroom and its contents, as well as washable articles, bedding, or apparel, should be thoroughly cleansed. The practice of spraying halls and places of public resort is held to be of doubtful utility, tending only to create a false sense of security.

In Sheffield, during the last epidemic, a "pool" of unattached medical men was formed with good results, their services being placed at the disposal of practitioners as required. In the larger areas part of such a pool might be formed from the health authority's own staff. With regard to the provision of institutional treatment, a point that has to be borne in mind is that influenza patients with pulmonary complications often bear removal badly. Screening should be adopted in hospital wards, and the attendants should observe all the precautions usual in treating acutely infectious respiratory diseases. It is observed that the setting up of emergency hospitals in schools, halls, and large unoccupied private houses may effect much economy in the supply of doctors and nurses, especially the latter.

Forewarned is Forearmed.

The concluding section summarizes the lines of action that should be considered in advance by a sanitary authority. It is held that the most important services that can be rendered consist in the organization of the available nursing service and the provision of assistance to influenza-stricken households. Influenza waves come with such rapidity that action of this kind, to be efficacious, must be prompt, and should, therefore, be prearranged. The measures advocated include the setting up of a small emergency committee (acting with the medical officer of health, and given full powers of organization and expenditure), consultation and co-operation with the medical practitioners and voluntary health workers, and the division of a town or district into areas for domiciliary nursing purposes. The other recommendations have, for the most part, been referred to in the foregoing paragraphs.

In a circular issued to sanitary authorities, together with an advance copy of the memorandum, it is pointed out that any such authority can, with the sanction of the Ministry, provide medical (including nursing) assistance, for the poorer inhabitants of its district. The Ministry of Health sanctions, generally, the provision of this assistance for persons suffering from influenza, and such assistance may include free dispensing of doctors' prescriptions. The circular emphasizes the importance of planning out all arrangements with considerable detail in advance before any sign of an epidemic appears, so that the scheme may be ready to be put into immediate effective operation as soon as the necessity for it arises. The chief need is held to be an adequate number of nurses immediately available whenever and wherever required.

AN APPARATUS FOR A MAN WITHOUT ARMS.

THE lot of the man who has lost both arms and who has no stump long enough to be useful is most pitiable. He is far worse off than the blind man, who is able to employ his other senses in place of sight. The totally armless man is tantalized by the sight of things he would like to reach but cannot. Without help he might starve in the midst of plenty, and he is dependent upon others for every necessary attention to his person, however intimate it may be. He can have no privacy. Fortunately for mankind at large, but unfortunately for themselves, such cases are very few. As they are rare they attract little public notice, and as they offer no field for profitable commercial enterprise, only the philanthropic inventor is likely to try and help them.

Some two or three years ago Mr. C. A. Sheehan devised a table, and at the request of the Munitions Inventions Department a description of it, with a drawing, was published in our columns of May 5th, 1917, p. 583. In this contrivance a lever passed through the top of the table, to which it was fixed by a ball joint, and at its lower end bore a footpiece. By means of this machine the inventor demonstrated that a great many things could be done by the use of the feet alone, but we are not aware that the machine has been put to any practical use for armless pensioners.

Lately Mr. G. Thomson, a gasfitter of Edinburgh, who had already invented a writing machine for the blind, was struck by an appeal for help from an armless man which appeared in a newspaper. He set to work to devise an apparatus that could be worked by the feet, and succeeded in producing an ingenious machine which he submitted to Colonel Cathcart of the Edenhall Limb-fitting Hospital, who was so much impressed with the possibilities of the apparatus that he arranged that Mr. Thomson should exhibit it at the Pensions Ministry and also, with the co-operation of Sir James Cantlie, at the College of Ambulance in Queen Anne Street, where we recently had the opportunity of seeing a demonstration. Mr. Thomson, who had not heard of Mr. Sheehan's machine, fixes his apparatus to a small ordinary table and works it by the feet, but there all resemblance to the other invention ceases. The man sits at the table and works a set of levers with each foot independently. One of these is used to hold appliances while the other is generally used to steady objects, although it can also pick up such objects as a piece of paper. The upper lever of each set having its fulcrum at the back of the table can be brought down upon it and also rotated horizontally, thus giving an effective compound movement. The levers are rigid, but very light, and consequently little fatigue should be caused by prolonged use of the machine. At the edge of the table furthest from the patient are holders for the appliances, from any one of which the tool wanted can be picked up and replaced by the lever by means of a most ingenious but simple spring catch.

Mr. Thomson showed an interested audience how he could feed himself, write a letter, wash his face, and do many other things. To the looker-on there was something almost uncanny about the two levers which ministered with such speed and apparent ease to the wants of the man sitting in the chair, and they almost seemed to belong to a separate intelligent organism unconnected with the feet below the table. It is estimated that the cost of the table machine would be considerably less than that of some artificial arms; but in these rare cases cost is a secondary consideration.

Although it is possible to write quite well with this machine, Mr. Thomson has invented a special apparatus for those who have much writing to do, which he also showed to the meeting. In this the pen—a fountain one—remains stationary while the paper, which is held on an oscillating plate, is moved from side to side. Mr. Thomson devised before the war a writing machine for the blind, in which the writer traced large copy-book letters along a space bounded by raised edges with a style connected with a pantograph and another style acting on carbon paper, and thus producing writing of the ordinary size. This apparatus is quite portable and can be used on any ordinary desk. Two forms were shown, one of which, for the sake of simplicity and consequent cheapness, produces its lines and words radially, in the relative position of the spokes of a wheel. With all four machines, no matter whether as an armless or a blind man, Mr. Thomson rapidly produced clear and legible specimens of handwriting. We understand that his writing apparatus for the blind, which was unfortunately rejected by those to whom it had been submitted in Edinburgh before Colonel Cathcart saw it, has been approved by the St. Dunstan's authorities and is likely to be adopted by them. We consider it a most efficient and practical machine.

British Medical Journal.

SATURDAY, JANUARY 3RD, 1920.

WILLIAM OSLER.

THE death of Sir William Osler removes a great personality, a leader of international medicine. Though his influence and inspiration will live and will long be carried on by his followers, the blank created by the irreparable loss of their Master is for them difficult to realize. The man and his work were both exceptional, and his personal characteristics, which may perhaps be partially epitomized by the best definitions of charity, or, in the words he wrote once under his own portrait, "Write me as one that loves his fellow men," enabled him by his labours of the last forty-five years to advance scientific medicine and education to a degree his whole-hearted zeal deserved. At the moment his friends—and they include all those who have come within his wide circle—are mainly occupied with their own personal sense of bereavement, and are therefore reluctant to attempt an estimate of what his name will eventually represent in the history of medicine.

Osler was a humanist, and was convinced of the importance of the study of the humanities to members of his profession; he believed that the wider the view beyond the confines of professional technicalities the better a man was equipped to influence the current thought of his day, and the higher the respect he received from the men of other professions. His own interest in the history of medicine was the natural outcome of his way of looking on life, and he saw in it a means for the broadening of the culture of medical men, a door which opened every field of learning. It was natural, therefore, that he should warmly support the formation of the section of the Royal Society of Medicine founded for the study of the history of medicine, and continuously show his interest in its work.

His influence on medical education, especially in the American continent, can hardly be exaggerated, and the remarkable change that came over American medicine at the end of the last century must be mainly explained by the ideals radiating from the Johns Hopkins Hospital—itself a lasting memorial to him—by means of his former pupils who became professors and teachers in numerous universities and medical schools. His early pathological post in Montreal, supplemented even then by visits to the most active laboratories and clinics in Europe, rendered it natural that he should make the application of clinical pathology to practical medicine a prominent feature in his hospital work. By closely linking up clinical with laboratory research he stimulated widespread original investigation.

During his last fourteen years as Regius Professor of Medicine at Oxford British medicine has come more directly under his quiet and kindly guidance in innumerable and perhaps not always fully recognized ways, and it was therefore only natural that he became the obvious leader in new projects—thus he was the moving spirit in the establishment of the Association of Physicians of Great Britain and Ireland, and of the *Quarterly Journal of Medicine*, the President of the Fellowship of Medicine and Post-Graduate Association of London, the President of the Bibliographical Society, and an active member of many committees dealing with various aspects of medicine and its application to the public welfare.

His broad sympathies and extensive acquaintance with the profession in most countries, his delight in bringing men together, and his knowledge of the phases and methods of medicine, made him a wise and resourceful leader in all movements which commended themselves to his shrewd, yet tolerant, judgement.

MEDICINE IN THE HOUSE OF LORDS.

THE most striking announcement in the list of New Year Honours is that a peerage has been conferred on Sir Bertrand Dawson, G.C.V.O.; it is the first time this honour has been granted to a member of the profession actively engaged in hospital teaching and private practice. We make no doubt that the Prime Minister, in recommending Sir Bertrand Dawson for promotion to the House of Lords, was actuated less by the desire to confer a personal honour, however well deserved, than by the wish to ensure that the Upper House of the legislature shall, when matters affecting the health of the people come before it, have the advantage of the counsel of a member of the medical profession thoroughly sympathetic with the forward movement in science, practice, and organization. It is a practical recognition of the principle that medicine must henceforth take a larger part in the work of the body politic, and that its participation in public affairs is necessary for their effective conduct. A tendency has been increasingly shown of late years to add to the House of Lords men engaged in the varied intellectual activities which make up the life of the nation. The House has never been without representatives of the Church and of the law, and for generations it has included distinguished sailors and soldiers; more recently eminent members of the Civil Service have found a place in it, along with representatives of commerce, finance, engineering, and journalism. There is every reason why medicine should receive similar recognition, more especially at a time when big constructive changes in health policy are in contemplation.

The selection of Sir Bertrand Dawson gives us as a representative one who knows the needs and aspirations of the profession. During his long connexion with the London Hospital he has been through all the ranks of a large medical school—demonstrator of physiology, medical registrar, a pathologist, for five or six years assistant physician and lecturer on materia medica and therapeutics, and finally, some ten years ago, physician and lecturer on clinical medicine. He has now resumed his full duties in these capacities after the interruption of the war, during which he was Consulting Physician with the British Armies in France and a member of the Army Medical Advisory Council, a position he still holds. He is a member of the Council of the British Medical Association, and the reputation in which he is held by his fellow teachers appears from the fact that he is Dean of the Medical Faculty of the University of London. He is Physician-in-Ordinary to the King. He is known to the profession at large first for his writings on gastric ulcer and other abdominal diseases—his essay on infective jaundice contributed recently to our columns is probably the most complete study of that disease yet published, and his writings on paratyphoid fever have helped to clear up the diagnosis and treatment of a perplexing disease; and secondly he is known for the attention he has long given to

the better organization of medical services; in his Cavendish lectures a couple of years ago he set out the principles upon which he considered the problem should be approached. The subject is now under the consideration of the Medical Consultative Council of the Ministry of Health, of which he became chairman when it was constituted last October. It is a council which has direct access to the Minister and the power to initiate advice; it has been called into existence in order to bring to bear on the policy of the Ministry the considered opinion of the profession with regard to those social and scientific matters on which it is most competent to speak; it is designed also to bring a great profession into relation with the administrators in the Ministry of Health. Sir Bertrand Dawson stated recently that the Council would make a report to the Minister, and this report, it may be anticipated, will eventually form the basis of legislation. It will be a great satisfaction to the profession to know that during the discussions which must occupy the next few years it will have in the Upper House a man in the prime of life, actively engaged in hospital and private practice, and therefore well able to understand its needs and aspirations.

In many other countries—in France, Italy, and Spain—the Upper Chamber (the senate) contains many members of the medical profession, but in this country few have become members of the House of Lords, and in no previous case was the medical peer engaged in active practice. Lord Lister was the most distinguished surgeon of his day, but he had ceased to practise; he was a national possession, and his eminence as a man of science had caused him to be chosen President of the Royal Society. Sir Walter Foster, when he became Lord Ilkeston, had for some time relinquished his practice in Birmingham to pursue a political career in London. Lord Playfair was a graduate in medicine, but was occupied through the whole of his life in chemical research and teaching. Lord Finlay, recently Lord Chancellor, who now sits in the House of Lords as Viscount Nairn, graduated in medicine at the University of Edinburgh, but never practised, being called to the bar at the age of 25. Lord Cobham, in whose favour a barony created in 1313 was called out of abeyance in 1916, is, so far as we are aware, the only member of the medical profession who is a hereditary peer, but he has never taken any part in legislative work.

It has thus come about that the profession has had no one in that chamber qualified to present the medical view on health questions. That this want has now been made good is a matter upon which not only the profession but the legislature and the public may be heartily congratulated.

THE PARLIAMENTARY SESSION.

THERE are two standards by which the parliamentary session just closed may be judged—namely, by what the Government has done, and by what it has failed to do. The legislative achievements are amazingly numerous, and some of them are of far-reaching importance. On the other hand, bills of great moment have been modified, withdrawn, or postponed to an extent that has never happened before. The change in procedure, the pace, and the distractions of grave international considerations arising out of the Peace Conference have had much to do with both the successes and the disappointments. Under an experimental plan for saving time big proposals have been dealt with in Committee "upstairs" instead of being taken in Committee of the whole House of Commons; speed has also been deemed essential in the stages of deliberation in the House of Commons; and the feeling that home problems were secondary to those of resettling the world's affairs has both helped and hindered progress. The absence of a strong Opposition weakened the Government in making clear-cut definitions and the circumstances of Coalition have led to compromise where sometimes bolder lines would have been more effective. The policy has been one of quick decisions—to get on or to cut out. Thus there has been trouble over some large issues—such as housing, tariffs, and labour questions—but these have involved the revival of old-standing controversies, and they are not of such close interest to the medical profession as measures of domestic concern, in the passing of which the Government shows a good record.

From our own standpoint the principal event of the session has been the passing of the Act setting up the Ministry of Health. The new Ministry absorbs the functions of the Local Government Board in health matters, and it retains the Poor Law administration until this can be dealt with differently; it takes over the insurance services, which previously formed a large and sometimes overlapping department. It has also become responsible for the medical inspection and treatment of young children, while delegating its authority in this regard to the Education Board, which has hitherto had the duty. Further, it has taken over the powers of the Privy Council under the Midwives Act, and the powers for infant life protection which were vested in the Home Secretary. The bill, moreover, was wisely framed to enable further transfers to be made by Order in Council, so that as time and opportunity allow the operations of the Ministry of Health shall be really comprehensive and complete. Dr. Addison has been prompt in setting up Consultative Councils and in reorganizing administrative machinery, but the benefits of the change cannot be expected yet to be felt. Spring time and harvest do not come together.

A measure of considerable consequence, which was passed in a day near the end of the session, is that which raises old age pensions to a maximum of 10s. a week, and extends the scope of the concession so as to enlarge the number of recipients probably by about 25 per cent. Another small bill which attracted little notice because it was essentially financial in nature, enables the Treasury to enlarge its grants to local authorities for the treatment of mental deficiency, without restriction of the amount of grant, subject only to the provision that it shall be in the same proportion of contribution as before—namely, that 50 per cent. shall be provided by the local authorities. It is hoped that much benefit may result from this change. In another category, but yet not to be regarded as insignificant in value, is the Rats and Mice Act, which will apply compulsory powers for the extermination of these disease bearers, and at the same time, it is hoped, help materially in the preservation of corn crops. A word should be said here also as to the importance of the measure which will regulate the presence of undesirable aliens in our midst; the two subjects are not so utterly remote as might at first sight appear. The restriction is of national interest in several senses.

In regard to housing the Government has been less happy than in much of its other legislation. The first bill required local authorities to act on a guaranteed subsidy which was fixed to secure these authorities against loss for a period of seven years. The second bill, which is intended to be complementary rather than to supersede the other, will give

subsidies to builders at a rate of not more than £150 a house, and subject to the limitation of the Treasury grants to somewhere about 15 million sterling. At the same time power is taken to restrict luxury building, and Dr. Addision has been careful to make arrangements with builders to secure a guarantee of priority in construction of the small dwellings so greatly needed for the life of the nation. The problem is complicated by the unsatisfactory rates of production, even with higher wages, by skilled hands, and also by difficulties of transport. There is also the handicap that the number of hands available at best is much less than in pre-war days, through the toll of casualties.

Side by side with legislative action has gone administrative development. The enlargement of the scales of pensions for men of the fighting services and their dependants has been made with great care and judgement by Sir L. Worthington-Evans, the Pensions Minister. Criticisms of detail, and indeed of principle in some matters, have been inevitable, but on the whole his work has been highly appreciated. He is one of the few Ministers who have really made good in a new position in a short time. In one matter he and Dr. Addison, as Minister of Health, have a mutual responsibility. This is in regard to the provision to be made for tuberculous discharged soldiers and sailors. The report of the inter-departmental Committee over which Sir Montague Barlow presided recommended, amongst other things that a grant of a million sterling should be made to finance village settlements of a permanent kind. How far the Treasury will go remains to be ascertained, but an immediate additional grant of £10,000 for work that can be done within the present financial year was sanctioned just before Parliament rose.

A great many other subjects have been dealt with more or less partially. The scheme for establishing ex-soldiers on the land by the purchase of farms and holdings by county councils is being proceeded with under an Act passed early in the year. Here again the housing need affects the outlook, and to a lesser degree the problem of transport also comes into the matter, for, until the circulation of commerce and the easy distribution of agricultural products can be made to run smoothly, every interest and every trade is adversely affected. Better transport conditions are essential for the relief of food prices, though, of course, they are influenced to a much larger extent by the world shortage and by the necessarily slow restoration of shipping facilities to a full extent and at reasonable freights. By co-ordinating various branches of transport service the Government expects in the course of time to promote efficiency, and it is also hoped that the Board of Trade may be able in various ways to stimulate production, and thus to assist in the restoration of prosperity. The Anti-Profiteering Act, which Sir Auckland Geddes promoted, has had some value in checking greed for commercial gain, but it needs to be supplemented, and a further measure is to be submitted to the House of Commons early in the coming session.

There is no need here to dwell upon the significance of the Government of India Act, which is framed with the object of securing conditions of greater tranquillity in the Eastern empire, nor need anything be said as to the prospects of the Irish Bill which has been put forward so bravely in the determination to place Great Britain beyond the possibility of reproach by the Irish people in regard to the form of Government for the sister isle. It is unfortunate that greater approach to the settlement of labour controversies has not been made in the session now ended, inasmuch as the unrest and uncertainty tend to prejudice production. But it is hoped that as the grave financial situation of the country and its dependence upon exports for its stability are realized by the working classes they will more fully grasp the nature of their responsibility for the common good, and that they will respond to the call which is made upon them, certainly not less for their own interest than for the interest of those who with resources of capital have to yield such large proportions of their income to keep the country going. One encouraging sign is the increased output of coal under the new conditions, but unfortunately nearly all the labour problems which revolve round questions of nationalization, administration, and conditions of working still remain in a fluid state.

VACCINAL PROPHYLAXIS OF INFLUENZA.

As will be gathered from an announcement published elsewhere in this issue (page 19), the Ministry of Health has arranged to provide medical practitioners with anti-influenzal vaccine, and expresses its anticipation that they will be willing to keep records of their results. Since there are no present indications of a serious wave of influenza and the value of vaccines in the prophylaxis of the disease is uncertain, some may hesitate to take advantage of the offer. Actually both reasons for hesitation are the best possible grounds for recommending widespread use of the prophylaxis. One of the chief difficulties in accurately assessing the value of any prophylactic measure in combating an epidemic disease is that it is generally only used after an epidemic has begun. The consequence is that the scales are biassed in favour of the prophylactic and the statistics obtained are often of no value. That this must be so is obvious on a moment's consideration. Suppose that coincidently with the outbreak of the disease prophylactic inoculation is begun and that it is impossible—as it always will be—to inoculate the whole population within a few days; then a greater or smaller number of persons who pass through the first stages of the epidemic uninoculated, but are ultimately inoculated, will figure in the final summary of results as unattacked inoculated persons, no heed being given to the fact that during a period of possibly maximal infectivity they were exposed to risk in the uninoculated state. To allow for this bias is often difficult, so that to secure a valid control of the method it is necessary that, *before* the outbreak, a sample of the population shall have been inoculated. When, as in the present case, inoculation is unattended by personal risk, the desirability of vaccinating a large number of citizens mixing freely with the rest of the community is very great. On the other hand, to inoculate all members of an isolated community, such as a boarding school, will give no trustworthy evidence as to the efficacy of the vaccine; this can only be provided when an adequate control is secured. Naturally, if the value of the method were established, such action would be unjustifiable; but, in the present state of knowledge, a medical officer is not called upon to put pressure upon unwilling parents, and, without such pressure, the whimsicalities of the public are certain to provide an adequate control in any type of community whatsoever.

ATROPINE IN SEA-SICKNESS.

ALTHOUGH the war must have greatly increased the number of the victims of sea-sickness, there has not been any corresponding expansion of the literature on this familiar disorder. It has been said that at the commencement of his career every ship's doctor is confident of his ability to cure or prevent this *bête noire* of travellers, but that experience invariably shatters this belief. It is therefore interesting to have the experience of Dr. Pierre Cazamian,[1] of the French Navy, based on a close study of

[1] P. Cazamian, *Arch. de méd. et pharm. nav.*, Paris, 1919, cviii, 241-284.

sea-sickness for more than two years, first in a hospital ship, and then in a battleship. He first adds to the well known manifestations some that are new, and, after discussion of the pathogeny, explains the treatment by atropine which has proved successful in his hands. The systolic and diastolic blood pressures were taken in 50 cases, and it was found that at first the pressures are distinctly raised, but that after sea-sickness had lasted for twenty-four hours or more they were below normal; in both conditions the systolic and diastolic pressures varied together, so that the pulse pressure remained normal. These observations are new and important; for Naamé, relying on palpation of the pulse and the assumption that there was a fall of blood pressure, put forward the view that sea-sickness was due to a reflex inhibition of secretion of adrenalin, and accordingly treated it prophylactically and curatively by the oral administration of adrenalin, giving larger doses to remove the symptoms. He reported very good results, but Cazamian found that there were many failures and that the symptoms might even be aggravated. Another clinical observation is that the oculo-cardiac reflex is altered; normally pressure on one or both eyes causes a transient slowing of the pulse, but in sea-sick persons there is generally—in 38 out of 50 cases—a quickening of the pulse. Similarly, firm pressure in the epigastrium was followed by increase in the pulse rate instead of a fall, a reputed sign of irritation of the sympathetic. After discussing at length the various hypotheses as to the causation, Cazamian gives the following explanation: As a result of numerous impulses travelling from the sense organs, and especially from the viscera, to the medulla, both the autonomic and the sympathetic systems are upset. At first the sympathetic is overactive and the blood pressure is raised; later it becomes exhausted and the blood pressure falls; but coincidentally the autonomic system is affected, though the vagotonia is masked by effects of the disorder of the sympathetic nerves. He likens both the phenomena and explanation of sea-sickness to those of surgical shock. After mentioning most of the remedies that have been advocated, he describes his method of treatment; to cure the symptoms one hypodermic injection of atropine ($\frac{1}{50}$ to $\frac{1}{30}$ grain) is given, and it has rarely been necessary to give a second injection, but he has found it desirable in some cases to administer $\frac{1}{100}$ grain after twelve to twenty-four hours; in a late stage of sea-sickness with low blood pressure and prostration the combination of adrenalin with atropine had, he found, a very beneficial effect. As a means of preventing sea-sickness $\frac{1}{60}$ grain of atropine is injected hypodermically on embarking, and may be repeated for three days if the weather conditions are bad.

THE RIVIERA.

IT is now some years since medical men were enabled to recommend their patients to visit the Riviera with any hope of their getting there without difficulty, or remaining there in comfort. English visitors are now returning in greater numbers than formerly, and have so far been rewarded by ideal weather conditions, consequent on the autumnal rainy season having duly asserted itself. Dr. D. W. Samways of Mentone, writing from his own unfortunate recent experience, tells us that it is important that travellers should see to it that their luggage accompanies them throughout their journey. It should never be registered beyond Paris. It should be seen through the Customs at Paris, taken to the hotel, and finally to the Gare de Lyon, and there registered. It then comes through promptly. If these details be not followed the luggage may be delayed for weeks. The Riviera is now free from German-speaking and German-behaving visitors, and hotel managers are catering specially for the English. Prices may seem high, but considering the exchange they are generally reasonable. Thus a room, with pension, in an hotel at 22 francs per day, is only 10s., since the franc is worth less than 6d., and though 33 francs daily may seem a large sum, its equivalent 15s. would appear very moderate in England. It should be remembered by the medical profession that the Riviera in no way corresponds to the South of England watering places. The latter have a marine climate. The Riviera has a dry, fresh mountain climate. The air on the Riviera on practically all fine days, and almost invariably at night, sets from the land to the sea. It passes from the high background of mountains to the north southward to the sea. The textbook classification of the Riviera resorts among those having a marine climate is quite erroneous. As rivers flow to the sea so does the Riviera air, but the sea no more makes the Riviera climate on that account than it does the rivers. Hence the dryness and freshness of its mountain-born air. Hence also its influence on catarrhal conditions, whether respiratory or aural, on the appetite and debilitated states generally, and by its contrast of climate and scene on English persons requiring a change.

THE ROCKEFELLER BENEFACTIONS.

MR. JOHN D. ROCKEFELLER has added one hundred million dollars to the fund of the General Education Board and of the Rockefeller Foundation, raising the total amount of his gifts to over four hundred millions. Of the new gift, fifty million dollars are allotted to the General Education Board to increase the salaries of the teaching staffs of the colleges and universities of the United States, and the like amount to the Rockefeller Foundation. It has been recognized in America that the salaries of the teaching staffs of the universities and colleges ought to be increased to meet the great rise in the cost of living. Various universities have made special appeals to the public, and in anticipation of the result Harvard and some other universities have already nearly doubled the incomes of their professors. The General Education Board in making its allotment will proceed on the principle that an equivalent amount shall be raised by the institution. Mr. Rockefeller expressed the desire that a part of his gift should be used to promote medical education in Canada, and it is understood that the board intends to devote five million dollars to this purpose. The objects of the Rockefeller Foundation are defined to be the furtherance of the well-being of mankind throughout the world, and its report for 1918, which has just reached us, affords evidence that its activities extend from China to Brazil. Its work is mainly done through three boards—the International Health Board, the China Medical Board, and the Rockefeller Institute for Medical Research. The Health Board during 1918 has devoted its energies chiefly to yellow fever, ankylostomiasis, and malaria, but it assisted also in a campaign against tuberculosis in France, the course of which has been described in our columns from time to time. In July, 1918, a commission was sent to Guayaquil to study yellow fever and related infections likely to be confused with it. One of the members, Dr. H. Noguchi, succeeded in isolating an organism resembling the spirochaetes but presenting certain differences which led him to put it in a separate genus under the name *Leptospira icteroides*, along with the organism of infectious jaundice (*L. icterohaemorrhagiae*). The investigation[1] presented many difficulties, as the organism is very fragile and has, it is thought, a granular stage, in which it passes through filters of a certain fineness; the probability of its being the causal agent is very great. The administrative work, under the direction of Dr. White, of the U.S. Army Medical Corps, appears to have been very successful, as the disease was under control by September 19th and no cases occurred after December 2nd. A daily house-to-house inspection was made in each infected community; suspected cases

[1] BRITISH MEDICAL JOURNAL, July 12th, 1919, p. 48: August 30th, p. 283: December 13th, p. 792.

were isolated and their houses fumigated, and systematic work was carried out for the destruction or control of the breeding places of the stegomyia mosquito. Since then Dr. Connor, a member of the field staff of the International Health Board, has undertaken to direct measures for the extermination of the disease. The most extensive field work undertaken was in connexion with hookworm disease (ankylostomiasis). It was carried on in Ceylon, China, and other parts of the East, in British Guiana, St. Lucia, St. Vincent, and Trinidad, in various Central American states, and in Brazil. The disease is very prevalent in some of the southern of the United States, and stress is laid on the fact that it causes not only physical debility, but in children mental backwardness. In addition to prophylactic measures—in particular the erection of properly constructed latrines—the treatment of infested persons was carried on; the most effectual remedies were thymol and oil of chenopodium. The use of the latter has greatly increased, but its mode of action is not well understood. Very remarkable results in the control of malaria were obtained where the co-operation of the authorities and the people themselves was given. The policy of the Board in respect of both ankylostomiasis and malaria is to make a grant, start the work under the direction of trained workers, and continue an annual grant for a few years until the control has been so well established that it can be continued by local resources. We have already given accounts of the work of the China Medical Board, and conclude this short notice by reference to the work of the Rockefeller Institute for Medical Research. During 1918 its energies were entirely devoted to war work and the education of medical officers and nurses, especially in the use of the Carrel-Dakin treatment for infected wounds, a portable military hospital being set up in the grounds of the Institute for this purpose. Large quantities of serums for meningitis, pneumonia and dysentery were produced, and the method of manufacturing an anti-serum for the gas forming bacillus was far advanced when hostilities ceased. The capital fund at the disposal of the Rockefeller Foundation is now, in round numbers, 176 million dollars, the whole of which, with the exception of 26 million dollars, has been given by Mr. John D. Rockefeller. The income, including a special gift of one million dollars by Mr. Rockefeller for the American Red Cross and United War Work, was over 8½ million dollars, which was raised to 20 million dollars by the unspent balance from 1917. Altogether 15 million dollars were disbursed during the year, and another 2 million provided but not claimed. The amount allotted to the Institute for Medical Research appears to have been 265,000 dollars, but an additional sum of 350,000 dollars was disbursed for medical military work.

ANTHRAX INFECTION BY BRUSHES.

In the summer of 1917 the Local Government Board published a report by Dr. F. Coutts on an inquiry into cases of anthrax suspected to be caused by infected shaving brushes.[1] In almost every case the lesion was situated in the shaving area of the face and neck, and in some of the brushes examined living anthrax bacilli were found. Dr. Elworthy proved that in one of the earliest cases the infection was due to the use of a recently purchased cheap shaving brush of imitation badger hair. In this, and in several unused brushes of the same kind bought from the same shop, virulent anthrax spores were found. All the brushes were traced back to one wholesale dealer, and were found to have been manufactured in a single factory. Investigations carried out by Dr. Coutts and Dr. Collis showed that the bristles used in making these brushes consisted mainly of undisinfected Chinese horsehair. The hair from the same source which had not yet been manufactured into brushes was found to be heavily infected with anthrax spores. Four other cases of anthrax occurring about that time were traced to imported brushes of foreign make. We have now received a communication from Dr. Henry T. Maw, of the administrative committee of the National Union of Manufacturers, who wishes to draw attention to certain facts relating to the origin and prevalence of anthrax in various parts of the country at the present time. Early in 1919, he says, a consultative council was formed by the Board of Trade to advise on the restriction of imports, and a subcommittee of this council was appointed to inquire into the brush industry and the importation of foreign-made brushes. The consultative council sent up a strong recommendation to the Board of Trade against the importation of foreign-made (especially Japanese) brushes, because of the insanitary conditions under which they were manufactured; special reference being made to the brushes used for medical and toilet purposes, such as throat brushes, toothbrushes, and shaving brushes. It was pointed out that the hair used in Japan for soft brushes was pony hair, which, unless sterilized, was apt to be very infectious, and that samples of brushes then on the market which were submitted for bacteriological investigation to Professor W. Bulloch, M.D., had been reported on adversely. At a meeting of the Imports Consultative Council on June 2nd, the subcommittee recorded the opinion that it was necessary on hygienic grounds to limit the importation of the cheaper Japanese brooms and brushes, and suggested that before final settlement of this question the international agreement, so far as Japan was concerned, should be revised. Dr. Maw states that, in spite of these warnings and the recommendation of the Council not to allow medical and toilet brushes to be imported from Japan until the Ministry of Health had been consulted, the Board of Trade published, on June 5th, a decision on the importation of brushes entirely contrary to the advice of the Consultative Council. Our correspondent adds that the National Union of Manufacturers is taking up the matter with the Board of Trade, and invites members of the medical profession having information on the subject to communicate with the secretary, Mr. G. Cheesman, 6, Holborn Viaduct, London, E.C.1.

[1] BRITISH MEDICAL JOURNAL, June 30th, 1917, p. 882.

INTRAMUSCULAR INJECTIONS OF QUININE.

As recent papers and discussions have abundantly shown, the treatment of malaria is far less satisfactory than was formerly believed, and opinion is conspicuously divided on several points; there are many methods, some complicated but all with their advocates, and the result is, to say the least, confusing. This is particularly true of intramuscular injections of quinine, which has been widely recognized to be followed in some cases by troublesome necrotic ulcers. Some who report long series without any untoward effects have confidently ascribed these ulcers to neglect of proper asepsis. It has also been stated that concentrated solutions of quinine are precipitated in the tissues, whereas very dilute solutions are rapidly and completely absorbed. In order to throw further light on the effects of intramuscular injections of quinine, Dr. L. S. Dudgeon[1] has investigated the question both in man and experimentally in cast mules, rabbits, guinea-pigs, and frogs. That necrosis of the tissues always follows intramuscular or subcutaneous injections of quinine is not sufficiently realized; within ten minutes the muscular fibres are necrosed with oedema, agglutination, and haemolysis of the red blood cells. Although concentrated solutions produce more intense necrosis than dilute solutions do, injections of solutions so dilute as to avoid necrosis and oedema are not of any practical value. Vessels may be so necrosed that severe haemorrhage ensues, and necrosis in the neighbourhood of a nerve may produce complete degeneration and paralysis. During the years 1916 to 1918 the following complications of intramuscular injections of quinine were observed:

[1] L. S. Dudgeon, *Journ. Hyg.*, 1919, xviii, 317-336.

tetanus, gangrene, abscess, pyaemia, nerve palsies, haemorrhage from large vessels, sciatica, chronic muscular pain and deficient movement, and thrombosis in varicose veins. The bad effects were not obviated by the addition of olive oil or fat or by dissolving the quinine in alcohol or ether, whether in a concentrated or a dilute solution. Although quinine is a powerful haemolytic agent, the acid used to dissolve the alkaloid is much more powerful in this respect; and it appears that the red cells and tissues generally are more readily destroyed than the malarial parasites by solutions of quinine. The bad effects of intramuscular injections of quinine were not more prominent in animals rendered experimentally anaemic than in control animals. Analyses by Captain F. S. Hele show that quinine is not fixed in the tissues immediately after injection to any appreciable extent. Intramuscular injections of quinine should therefore be given only when emergency renders them necessary, should not be made in the vicinity of large vessels or nerves, and should not be repeated in the same area. But the superiority of intramuscular injection to the oral method in malignant malaria is, as Dr. W. H. Willcox (see p. 28) points out, so undoubted that its use as a measure of urgency should not be ruled out.

REWARDS FOR MEDICAL DISCOVERY.

AT the last meeting of the Joint Committee of the British Medical Association and the British Science Guild on awards for medical discoveries, a report by Sir Ronald Ross was adjusted and adopted. The report defined "medical discoveries" as "the ascertainment of new facts or theories on the human body in health, and the nature, prevention, cure, or mitigation of injuries and diseases of human beings." It was also held to include the invention of new methods or instruments for the improvement of sanitary, medical, and surgical practice, or of scientific and pathological work. The Committee intends to take steps to ensure proper rewards for medical discovery so as, on the one hand, to encourage medical investigation, and, on the other, to discharge a moral obligation incurred by the public through the advantage it takes of private effort. A sharp distinction is drawn between compensation and reward, the former being reimbursement of losses, the latter an act of grace in appreciation of services rendered. One of the principles laid down is that no medical discovery should entail financial loss upon the investigator, and it is suggested that the compensation or reward should be assessed as equal to the difference between the emoluments actually received and those that might reasonably have been expected if the investigator had devoted all his time to successful clinical practice. It is held, further, that it is proper for every civilized State, in addition to assisting investigations in progress, to remunerate those of its citizens who have already conferred upon it benefits through medical discovery. It is suggested that Parliament should revive the precedent of Edward Jenner, to whom it voted money both by way of compensation for losses incurred in achieving his discoveries, and as a reward for their value to mankind. The Committee is disposed to suggest that Parliament should provide an annual sum of, say, £15,000 for life pensions for those who have made medical discoveries, and to the widows of the discoverers after their death. It is thought that there might immediately be instituted ten pensions of £1,000 a year each, and ten of £500 a year. The intention, we understand, is to bring the views and arguments of which we have given an outline, to the notice of the Prime Minister at an early date.

THE NEW YEAR HONOURS.

IN addition to the peerage granted to Sir Bertrand Dawson, to which reference is made elsewhere, the New Year list includes the honour of knighthood conferred upon Dr. J. Court of Staveley, Chesterfield, who has made important researches into certain diseases of miners, especially miners' nystagmus and ankylostomiasis; on Dr. H. J. Gauvain, Medical Superintendent of the Hospital for Crippled Children at Alton, Hampshire, who has been active in advancing the treatment of tuberculous disease of the bones and joints, especially in children; and on Dr. Frederick Spencer Lister, Research Bacteriologist to the South African Institute for Medical Research, whose name is particularly associated with the bacteriology and vaccine treatment of pneumonia. The same honour is conferred on Mr. F. C. Danson, chairman of the Liverpool School of Tropical Medicine. The C.M.G. is conferred upon Lieut.-Colonel William Thomas Frederick Davies, M.D., D.S.O., a member of the House of Assembly, Union of South Africa. The Kaisar-i-Hind Medal (first class) is conferred upon Dr. William James Wanless, principal medical officer of the Mission Hospital at Miraj, and chief medical officer of the American Presbyterian Mission at Bombay; Dr. Kate Platt, principal of the Lady Hardinge Medical College for Women, Delhi; Dr. Margaret Ida Balfour, Joint Secretary to the Central Committee of the Countess of Dufferin's Fund; and Miss Ida Sophia Scudder, Doctor in charge of the Mary Taber Schell Hospital, Vellore, North Arcot District, Madras. The services rendered by Sir R. T. Glazebrook, F.R.S., in the organization of the National Physical Laboratory, of which, when he resigned last year, he had been director for twenty years, are acknowledged by the K.C.B., and a knighthood is conferred upon Professor Arthur Schuster, F.R.S., who recently ceased to be one of the Secretaries of the Royal Society.

THE UNIVERSITY UNIT AT ST. THOMAS'S.

WE understand that Dr. E. H. Starling, C.M.G., F.R.S., Jodrell Professor of Physiology, University College, London, has accepted an invitation to become the director of the medical element at St. Thomas's Hospital, and that arrangements are in progress for the appointment of assistant directors in pathology and clinical medicine to work with him in the new element. We announced some time ago that Sir Cuthbert Wallace, K.C.M.G., surgeon to the hospital, had become director of the surgical element, so that two-thirds of a university unit has now been formed at this great hospital and medical school. Dr. Starling has been concerned for the greater part of his life with physiology as an investigator and teacher, but he has always regarded it and taught it as one of the institutes of medicine. During the war he for a time undertook clinical work in military hospitals; afterwards, with the rank of Lieutenant-Colonel R.A.M.C., he became chemical adviser to the Salonica Force, and finally scientific adviser to the Ministry of Food. He is also British delegate on the Inter-Allied Scientific Food Commission. Early last year we published a report of his Oliver-Sharpey Lectures at the Royal College of Physicians on the feeding of nations, described as a study in applied physiology. He has been an inspiring influence to others, and has himself received many honours in recognition of the importance of his researches, especially with regard to hormones and the physiology of the heart, the subject of his Linacre Lecture at Cambridge in 1915. He was Croonian Lecturer at the Royal Society, with Professor Bayliss, in 1904, and received the Royal Medal of the Royal Society in 1913. He was Croonian Lecturer in 1905 at the Royal College of Physicians, of which he is a Fellow, when he dealt with the chemical correlation of the functions of the body; he received in 1907 the Baly Medal from the same College.

WE understand that arrangements are far advanced for the constitution of two elements of a hospital unit at University College Hospital and Medical School. We believe that as at present arranged Dr. T. R. Elliott, C.B.E., D.S.O., F.R.S., physician to the hospital, will become the director of the medical element, and that Mr. C. C. Choyce, C.M.G., C.B.E., F.R.C.S., will probably become the director of the surgical element.

THE ranks of the medical members of the House of Commons have been strengthened by the return of Lieut.-Colonel F. E. Fremantle, O.B.E., R.A.M.C.T., for the St. Albans Division. He received 9,621 votes as against 8,909 polled by the Labour candidate and 2,474 by the Liberal candidate. Colonel Fremantle is honorary consulting M.O.H. to the Herts County Council and served during the war as D.A.D.M.S. Mesopotamia. He graduated at Oxford M.B., B.Ch. in 1898 and M.A. and M.Ch. in 1903, and is a Fellow both of the Royal College of Physicians of London and of the Royal College of Surgeons of England.

South Australia.

MEDICO-POLITICAL.

ONCE more our hopes are being raised by the introduction of a Medical Bill into Parliament; it is based on that which passed the Upper House six years ago, but was dropped in the Lower. If it be passed now it will remove many of the anomalies of the present Act, which has not been altered for thirty years. Meanwhile the Government will conciliate mechanical opticians by introducing a bill for their registration, and is coquetting with a very dubious attempt to control and treat venereal diseases which would impose harassing restrictions upon the victims.

THE UNIVERSITY AND MEDICAL SCHOOL.

The death of Professor Sir Edward Stirling and the resignation of Professor Archibald Watson have created vacancies in the chairs of physiology and anatomy, which have been filled, in the case of the chair of physiology, by the appointment of the son-in-law of the previous incumbent—namely, Professor Brailsford Robertson, who made a great name for himself in San Francisco and at Toronto. The new professor of anatomy is Dr. F. Wood-Jones, who is well known in London and in Manchester for his anatomical, biological, and anthropological researches. It has been decided also that the much needed chair of pathology shall be instituted at the same time, and the applications for the position are now being considered. The lamented death of Dr. Archibald Magarey, who was long the acting secretary of the South Australian Branch, caused a vacancy in the post of demonstrator of anatomy and to this a returned soldier, Dr. Malcolm Scott, F.R.C.S., has been appointed. At the Adelaide Hospital several changes have occurred in the staff. Dr. De Crespigny becomes full physician, Drs. Cavenagh-Mainwaring, F.R.C.S., and Simpson Newland, F.R.C.S., have been promoted to be surgeons, Dr. Poulton having resigned that position.

SIR JOSEPH VERCO.

The knighthood conferred upon Dr. J. C. Verco has been approved as a most fitting honour both by the laity and the profession. Over thirty years ago Dr. Verco was recognized as the head of the profession in South Australia by being elected President of the First Intercolonial Medical Congress; only this year he retired altogether from practice. He seems likely to rival Sir Joseph Banks in this respect; he has already been President of the Royal Society of South Australia for at least a dozen consecutive years, his specialty in science being conchology. Freed from the engagement of medical work Sir Joseph Verco would appear to be a busier man than ever. He was elected President of the South Australian Branch for the fourth year in succession last June, but he immediately retired to make way for Lieut.-Colonel Simpson Newland, D.S.O. The honorary secretaryship has been filled by the appointment of Colonel H. A. Powell, C.M.G.

Scotland.

THE UNIVERSITY OF EDINBURGH.

THE annual report of the University of Edinburgh for 1918–19 was issued on December 24th, 1919. It recalls and summarizes a great multitude of facts, most of them already recorded from time to time in our columns. The total number of matriculated students was 3,554—2,719 men and 835 women; this was an increase on the previous session of 1,463 students; the increase was chiefly due to the influx of those who, on the conclusion of the armistice, were released from military duty, though in the spring and summer terms a large number of soldier students from overseas attended certain courses, some of them special courses, within the university. The grand total may be analysed in various ways—for instance, into faculties. Thus, in the faculty of medicine there were 1,683 students—nearly half of the total; arts came next with 1,019, and science third with 678. The total may also be analysed according to nationality; thus, in the medical faculty the nationalities were: Scotland 948, England and Wales 298, Ireland 42, India 53, Dominions and Dependencies 296, and foreign 46. The M.B. and B.S. degrees were conferred on 95 candidates, the M.D. on 30, the M.S. on one, and the diploma in tropical medicine on two. A diploma in public health has been established.

In the faculty of medicine three new chairs were founded—that of chemistry in relation to medicine, to which Dr. George Barger was appointed last April; that of therapeutics, the first holder of which is Dr. J. C. Meakins, formerly of McGill University, Montreal; and that of psychiatry, founded through a gift of £10,000 from the Royal Edinburgh Asylum for the Insane, to which Dr. G. M. Robertson, Superintendent of the Asylum, has been appointed. The university has lost the services of Dr. Harold Pringle, appointed Professor of Physiology in Trinity College, Dublin, and of Dr. John Tait, appointed Professor of Physiology in McGill University.

The unprecedented number of applicants for admission to the university, more especially in the faculties of science and medicine (some hundreds having had to be refused admission to the latter), has emphasized the urgent need for structural developments in a number of departments. Extensions to the existing buildings are in progress, by which it will be possible to secure much-needed additional accommodation for the departments of anatomy and physiology. A very important new departure has been made in the acquisition of over 100 acres of land on the south side of the city, where building operations have already been begun, to meet, in the first instance, the long overdue needs of the department of chemistry.

COLLIERY SURGEONS' COMMITTEE.

As a result of prolonged negotiations between the Scottish Colliery and Public Works' Surgeons' Committee and the National Union of Scottish Miners, a national agreement has been reached for a uniform flat rate in all areas. The rate has been fixed at 3½d. a week for each worker where no medicine is supplied, and 4½d. a week where medicine is supplied. It has been agreed that Joint Committees of representatives of doctors and mine workers shall be set up in each area to consider local grievances, in addition to a Central Joint Committee.

England and Wales.

THE WELSH MOBILE LABORATORY.

AT the last monthly meeting of the Cardiff Medical Society Professor Emrys-Roberts related his experience whilst in charge of the Welsh Mobile Bacteriological Laboratory presented to the Welsh Army Corps by Lady Lynn-Thomas in the beginning of 1915. The laboratory was attached to the Welsh Division during its training, and for a short time after its arrival in France, after which it was established as a unit in the First Army, having allotted to it a corps area including five casualty clearing stations. The work was varied and interesting, and Professor Emrys-Roberts described briefly what had been done, and indicated the value of a mobile laboratory not only on active service, but also as part and parcel of the equipment of a public health service. A hope has been expressed that in due time the laboratory will find its way back again to the Principality.

SCARLET FEVER AND DIPHTHERIA IN LONDON.

The Minister of Health stated, just before the prorogation, that on December 18th the number of cases of scarlet fever in the hospitals of the Metropolitan Asylums Board was 2,900. He said that in 1914 the Metropolitan Asylums Board had twelve institutions containing 7,065 beds for the treatment of infectious diseases, excluding institutions

reserved for small-pox. All the institutions taken over by the War Office as military hospitals have been returned, except two; one of these will be returned at the end of February, and one additional institution has been made available for infectious cases. The number of beds at present provided is 6,162, and the bulk of the patients admitted suffer from scarlet fever or diphtheria. In addition, there is a reserve hospital with 350 beds which could be used in the absence of an epidemic of small-pox. The number of cases of scarlet fever notified in London in the week ending December 20th, 1919, was 485, and of diphtheria 325, as compared with 443 and 272 respectively in the previous week.

Correspondence.

MODE OF QUININE ADMINISTRATION,

SIR,—In reply to the kindly criticism in your last issue by Sir Ronald Ross of my letter on the treatment of malaria (BRITISH MEDICAL JOURNAL, December 13th, 1919), let me say that the object of my communication was to emphasize the importance of intravenous and intramuscular administration of quinine in certain types of malaria which do not respond readily to oral administration. The types of malaria in which this method had been found of great value were quoted. It is well known that until comparatively recently the administration of quinine by intravenous or intramuscular methods has been disapproved of by the army authorities in India; and, indeed, an Order was issued some years ago forbidding its use in those ways.

The figures quoted in my letter were intended to give some approximate idea of the comparative values from a clinical point of view of the different methods of administration, and were not meant to be mathematical expressions based on scientific experiments.

The comparison of the therapeutic value of 5 grains of quinine bihydrochloride intravenously with 100 grains given by the mouth was not meant to suggest that doses of 100 grains should be given by the mouth or that the therapeutic value increased *pari passu* with the dose, but rather that a very much greater beneficial effect (something like twenty times) resulted from this method of administration.

In Northern Persia, in September, 1918, Major F. P. Mackie, I.M.S., and myself investigated an outbreak of malignant malaria in which the oral administration of quinine proved of little value either in effecting removal of the parasites from the blood stream, or in causing an improvement in the dangerous symptoms. When quinine was administered intravenously or intramuscularly marked beneficial results at once occurred associated with the disappearance of the parasites from the blood stream. Again in October and November, 1918, when the influenza epidemic spread to Northern Persia the majority of the cases amongst the troops were complicated by relapsing or malignant malaria, a combination causing most acute and dangerous symptoms. I saw in consultation a great number of these cases, and an exactly similar experience resulted as regards the very much greater benefit following intravenous and intramuscular methods as compared with the oral administration of quinine; the difference was most striking.

The administration of large doses of quinine by the mouth was not recommended in my letter, and the only reference to oral dosage was that which Sir Ronald Ross has himself officially advised and which I entirely accept. Indeed, the last part of my letter contained a caution against the administration of large doses by the mouth.—I am, etc.,

London, W., Dec. 29th, 1919. W. H. WILLCOX.

SIR,—The ratio of value suggested by Colonel Willcox (BRITISH MEDICAL JOURNAL, p. 792) recalls a rather dramatic demonstration which occurred in North Persia in the autumn of 1918.

The column operating in that area was assaulted by the influenza epidemic, complicated by tertian malaria (both relapsing and malignant), and a very large number of grave cases resulted. The attacks of malaria were obviously protracted by the influenzal element. The field hospital of which I had charge was staffed with a few field ambulance bearers, so it was not at first thought possible to do more than treat the cases by oral quinine solution given after the sweating stage had appeared. Doses from 30 to 120 grains a day were given over a week or more with literally no apparent effect.

We therefore gave (both to old and to fresh cases) quinine bihydrochloride by intramuscular injection in doses varying from three to fifteen grains. Rough notes taken at the time showed sudden improvement in almost every case, sometimes amounting to abo tio ı of the attack after one dose. The effect appeared to be proportional to the size of the dose. The fact that some of the cases were heavily "under" quinine appeared to make little difference; and although as a matter of routine most of the patients were kept on 45 grains daily by the mouth, a few control cases suggested that this might have been dispensed with.

In the cases where the pyrexia, though diminished, was not abolished, 7½ grains of the bihydrochloride intravenously in a single dose often brought the temperature to a steady normal in the most rapid and striking fashion.

The following case may be interesting as a type of some hundreds, many of which cases were seen by Colonel Willcox in consultation with me:

Sgt. M., R.A.S.C.—Malignant tertian and influenza. Paroxysms; 105° to 106°, with remissions to about 101°. Solution by mouth for three days. Maniacal delirium; haemolysis, jaundice. Gr. x intramuscularly, given daily in addition to oral. Range about 102° to 99°. No delirium. Profound anaemia. Jaundice improved. Parasites still present. This persisted for twelve days without change. On the twelfth day gr. vii intravenously were given and repeated on the thirteenth. Temperature fell to normal on the evening of the thirteenth day, and convalescence proceeded normally with two mild relapses aborted by gr. x intramuscularly. Oral quinine gr. xxx was continued for a month at the end of which no parasites were observed, and anaemia had vanished.

I have not drawn a distinction between the relapsing and malignant cases, as clinically (with the influenzal complication) they were almost identical, and the results of treatment were exactly the same, irrespective of the type of case.—I am, etc.,

O. H. MAVOR,
Late acting Major R.A.M.C.

Glasgow, Dec. 27th, 1919.

PREVENTION OF VENEREAL DISEASE.

SIR,—On reading the correspondence relating to the prevention of venereal disease I note the stress that is being laid by some correspondents on the moral side of the question—that is, whether prophylaxis is morally right or wrong. I fail to see that as medical men we have any concern with the moral aspect of the matter. That had much better be left to others.

The medical profession has at hand certain facts, which are:

1. That gonorrhoea and syphilis are caused by two micro-organisms.
2. That certain chemical agents destroy these organisms.
3. That both diseases cause a great deal of illness and suffering.

Therefore, according to the traditions and practice of medicine, use should be made of the first two facts to diminish the third.

Some individuals—possibly the great majority, possibly a very small minority—among those exposed to venereal infection may apply the prophylaxis improperly, either owing to carelessness or owing to other circumstances, and so lose its full benefit. We shall, however, have done our duty if we impart to the public the truth that science has imparted to us.—I am, etc.,

W. HERBERT BUTCHER, M.A.Oxon.,
L.R.C.P.Lond., M.R.C.S.Eng.

Wark-on-Tyne, Dec. 24th, 1919.

SIR,—In view of the present epidemic of conflicting letters on this matter, do you not think the following quotation (from what has been written but not yet published elsewhere) presents fairly what ought to be the medical attitude towards prevention?

"All medical men, too, should be ready and willing to advise on prevention, without troubling themselves about whether action should be taken before or after the risk has been run, or whether it may be right to act in an hour's time but not now, and such-like absurd futilities. They should simply *prevent*, however, whenever and wherever they can and dam the consequences."

N.B. Dam does *not* mean damn.—I am, etc.,

ARTHUR COOPER.

December 26th, 1919.

SIR,—We are being invited to become the devil's panders by making immorality safe and—insult added to injury—the devil's proctors by proclaiming it inevitable. The way to the pit used in old days to be paved with good resolutions: it is now to be macadamized with prophylactic packets.

Let a *thinking* profession recognize that no upward step would ever have been taken by the human race if it had been generally assumed and proclaimed that the downward path was inevitable, and let an *honourable* profession refuse with deep disdain the ignominious rôle of "procuress to the lords of hell."—I am, etc.,

Streatham, Dec. 20th, 1919. M.A., M.D.CANTAB.

THE R.A.M.C. AS A CAREER.

SIR,—I notice in the JOURNAL of December 20th a letter which, I presume, is intended to be an answer to mine of November 22nd.

It is obvious that the writer, who gives no clue to his own identity, is quite aware of mine, which, of course, I have no wish to disguise, but he appears to have overlooked the fact that "The R.A.M.C. as a Career" was supposed to be the subject under discussion and not the merits or demerits of my humble self.

Apparently I labour under the great misfortune of not being a *persona grata* to this anonymous correspondent, who, I fear, will not have the courage to come out of his shell and so give one the fair opportunity of replying in detail to a letter which is so irrelevant that it can only be concluded that its writing was prompted by personal "spleen."—I am, etc.,

Cardiff, Dec. 27th, 1919. W. M. S.

THE DISTRESS IN VIENNA.

SIR,—Many medical men who have studied or taken out post-graduate courses in Vienna in pre-war days, will have read of the present distress in that city with much regret. Though we may be very angry with Austria for commencing the war, and though we may be strongly opposed to the action of pro-German socialists and radicals in this country, I think most of us will desire to do something, however little it may be, to help to alleviate the distress of the city, where so many of us spent such happy days thirty years ago or more recently. The opportunity to help is given this week through the special appeals made in the newspapers and by the various churches.—I am, etc.,

December 29th, 1919. R. T. W.

THE ORDER OF ST. JOHN.

WE have received the following letter of inquiry:

"SIR,—I read with much interest your leading article on Red Cross work in peace. I have been connected with the educational problem with regard to first aid and home nursing for many years. I think your suggestion to have a report of the aims and objects of the two societies—the Red Cross and St. John Ambulance Association—an excellent one. As I am under the impression that the St. John Association is granting orders and decorations for work done for that society, could you inform me under what conditions these honours are given? Is there any truth in the report that payment has to be made for them?—I am, etc.,

December 19th, 1919. ONE INTERESTED."

We find that the Order of St. John was revived by the Knights of Malta after the fall of Napoleon and the restoration of the Bourbons in 1814. They obtained a Pontifical bull, which was issued by Pope Pius VII on August 10th, 1814. Through the exertions of Sir Robert Peat, D.D., Chaplain Extraordinary to George IV, the English *langue* was revived under the provisions of a statute of the 4th and 5th of Philip and Mary. The present order of St. John received a charter from Queen Victoria on May 14th, 1888, incorporating it under the style and title "The Grand Priory of the Order of the Hospital of St. John of Jerusalem in England." The St. John Ambulance Brigade had come into existence in 1877.

The various grades in the "Grand Priory of the Order of the Hospital of St. John of Jerusalem in England" are:

1. Knight of Justice.
2. Lady of Justice.
3. Chaplain.
4. Knight of Grace.
5. Lady of Grace.
6. Esquire.
7. Honorary Serving Brother.
8. Honorary Serving Sister.
9. Honorary Associate.

Honorary Associates, it would appear, are not necessarily members of the Order, but, like the members, are under the government and control of the Order, which is vested in the Chapter. This consists of the Knights of Justice, the Prelate and Sub-Prelates, certain selected members, and the executive officers (*ex officio*). The Charter lays it down that membership of the Order cannot be obtained by the mere fact of money contributions and subscriptions to hospitals or charitable work. Nor can membership be purchased by a mere monetary payment. The rules of the Order, we understand, require members down to and including the grade of Esquire to pay an entrance fee (called foundation payment) and an annual subscription (called annual oblation) as follows:

	Foundation Payment.	Annual Oblation.
	£	£
Knight of Justice	30	5
Chaplain	15	2
Lady of Justice	20*	3
Knight of Grace	20	3
Lady of Grace	15*	2
Esquire	5	2

* Reduced in the case of a wife, sister, or daughter of a Knight.
Neither admission fees nor annual subscriptions are paid by lower grades.

There are, we believe, other higher grades open only to Knights of Justice. Every member and honorary associate is required to make the following solemn declaration:

That I will ever be faithful and obedient to the Order so far as is consistent with my duty to my Sovereign and Country, doing everything in my power to contribute to its glory, prosperity, and utility; that I will combat everything prejudicial to its wellbeing; that I will never act contrary to its dignity, but that I will conduct myself always as a good Christian and a man (woman) of honour.

An application for the various grades in the Order is, in the first instance, submitted to the Finance and General Purposes Committee and then to the Council and Chapter, after which it is submitted to the Grand Prior, H.R.H. the Duke of Connaught, for approval. The name is then balloted at the next chapter. The next stage is that the name is brought again before the Grand Prior for submission to the King for final sanction.

Members of the Order wear a badge suspended from a black watered riband, but the election to any of the grades of the Order or the privilege of wearing any of the badges is not to be deemed or construed to confer any rank, style, title, dignity, or appellation or social precedence whatever.

The objects of the Order are the encouragement of works of humanity and charity, aid to the sick poor, study of the needs of the poor in time of sickness, aid to the sick and wounded in war, and maintenance of the St. John Ambulance Association, the objects of which are instruction in first aid and in the elementary principles of nursing and hygiene, the manufacture and distribution by sale or gift of ambulance material, the formation of ambulance dépôts in centres of industry and traffic, and the organization of ambulance corps, invalid transport corps, and nursing corps.

A short article describing the circumstances attending the revival of the Order was published in our columns five years ago. A good account of the origin of the first hospital of St. John at Jerusalem is given in *The Military Religious Orders of the Middle Ages* (by F. C. Woodhouse, M.A.), one of the Home Library Series of the Society for Promoting Christian Knowledge. The present Order of St. John has retained from mediaeval times, in a modified form, the religious qualification required from candidates who aspire to be admitted to the various grades in the Order. One consequence would appear to be that subjects of the Crown who are not within the religious limitation laid down by the Order are not admissible, so that Unitarians, Mahommedans, and members of other religious communities within the Empire, are not eligible for admission to the Order.

So far as we are aware, the St. John is the only one of the eighteen Orders of Chivalry of the United Kingdom which retains a restriction on the ground of religion and requires payment of certain admission and annual fees.

Obituary.

SIR WILLIAM OSLER, BT., M.D., F.R.S., F.R.C.P.,

Regius Professor of Medicine in the University of Oxford.

THE death of Sir William Osler on December 29th—within six months of the celebration of his 70th birthday—has caused a deep sense of personal sorrow throughout the medical profession of two continents. He had been ill for more than two months, but the end came quickly.

William Osler was the sixth son of the Rev. Featherstone Lake Osler and Ellen Free, daughter of Thomas Pickton, of London. One of his brothers is Sir E. B. Osler, a member of the Dominion House of Commons and a director of the Canadian Pacific Railway, and another is Judge Osler, who was a justice of appeal, Ontario. The Oslers were a Falmouth family, shipowners and merchants, and the father was born there in 1803. Subsequently he went to Canada as a missionary, and eventually became Rector of Ancaster and Dundas, Ontario (1857–93).

Early Days.

William Osler was born at Bond Head, Ontario, on July 12th, 1849. He told us in his address on Sir Thomas Browne that it was his good fortune as a boy to come under the influence of a parish priest of the Gilbert White type, who followed the seasons of nature no less ardently than those of the Church, and whose excursions into science brought him into contact with physic and physicians. Father Johnson, as his friends loved to call him, founder and Warden of the Trinity College School, Weston, near Toronto, illustrated that angelical conjunction of medicine and divinity more common in the sixteenth century than in the nineteenth. It was he who first introduced William Osler to the *Religio Medici*, a copy of which acquired then, the second book he ever bought, was always the most precious in his library. From it came subtle influences which gave stability to character and helped to a sane outlook in the complex problems of life. The thoughts of Browne, and those also of Marcus Aurelius and Epictetus grew to be his thoughts; conscientious devotion to duty and deep human interest in human beings became his master thoughts thus early in life. William Arthur Johnson was one of the three teachers—Dr. James Bovell of Toronto and Dr. Palmer Howard of Montreal being the other two—to whom he dedicated his *Principles and Practice of Medicine*, and to whom he owed his success in life, if success means getting what you want and being satisfied with it. From school he went to Trinity College School of Medicine, and in 1870 to McGill University, Montreal, where he graduated in 1872.

In the summer of 1872, after a short tour—Dublin, Glasgow, and Edinburgh—he settled at the Physiological Laboratory, University College, with Professor Burdon-Sanderson, where he spent fifteen months working at histology and physiology. At the hospital he saw in full swing the "admirable" English system, with the ward work done by the student himself the essential feature, and though not a regular student of the hospital he had many opportunities of seeing William Jenner and Wilson Fox, and his notebooks contained many precepts of these "model clinicians." From Ringer, Bastian, and Tilbury Fox he learnt how attractive out-patient teaching could be made—Ringer he always felt had missed his generation, and suffered from living in advance of it. The autumn of 1873 was spent in Berlin, where he had his first introduction to the medical clinic on a large scale, on which he was to model his own clinic at Johns Hopkins Hospital. There he studied under Frerichs, Hoffmann, Riess, Ewald, and Traube. The last named made a great impression on him as an ideal physiological clinician. The first five months of 1874 were spent in Vienna in the clinics of Hebra, Bamberger, and Widerhoffer. In Bamberger he found another ideal clinician.

Montreal.

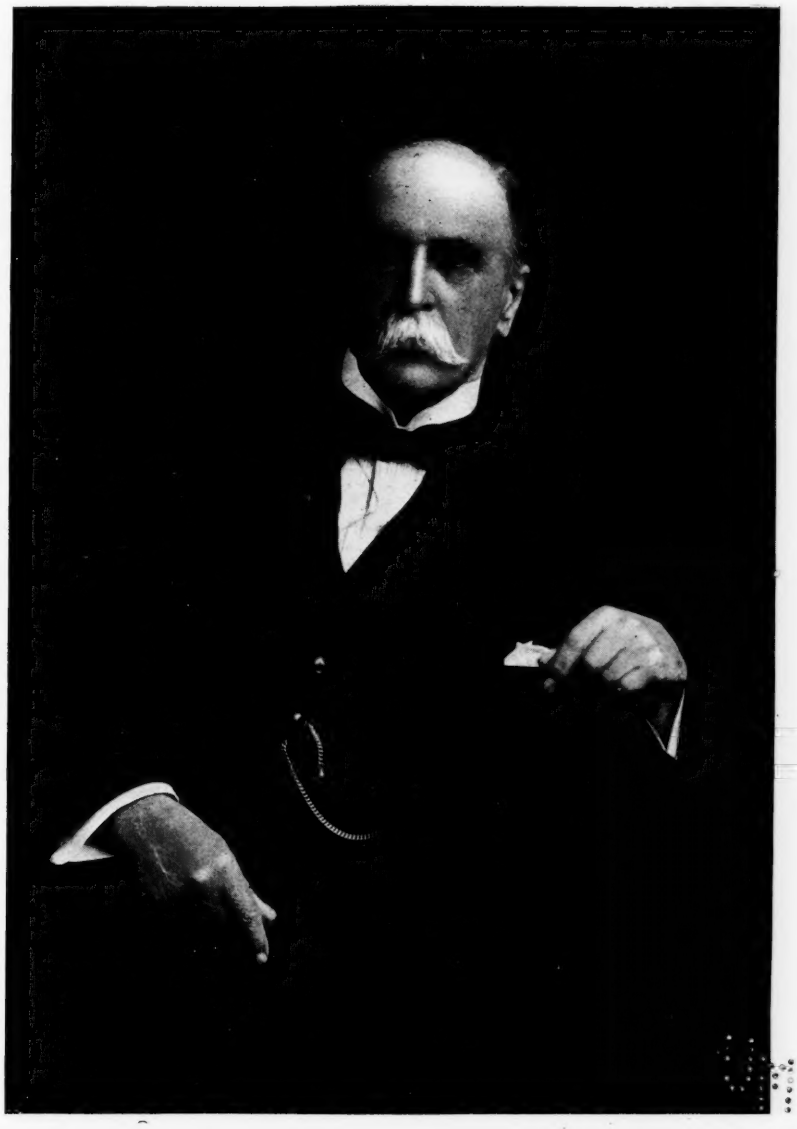
When he returned to Montreal in September, 1874, the Chair of the Institutes of Medicine was vacant, and he found that the Faculty had, with some hardihood, appointed him, a young and untried man, to it, instead of to the demonstratorship as he hoped. With the appointment he had the "ghastly task" of delivering four systematic lectures a week for the winter session, and from this period dated his ingrained hostility to this type of teaching. His colleagues at the Montreal General Hospital placed the *post-mortem* department at his disposal, and pathology became his chief interest. He then began that extensive experience of this subject which formed the basis of his future successful career as a physician and teacher. He was appointed physician to the small-pox wards of the Montreal General Hospital in 1875, and in 1878 honorary physician to the hospital. On the day of his election he left for London to take the Membership of the Royal College of Physicians and to work at clinical medicine. For three months he had a delightful clinical experience, attending the ward visits of several London physicians. Murchison he described as a model bedside teacher, Gee as one in whom were combined the spirit of Hippocrates and the method of Sydenham. Fred. Roberts showed how physical diagnosis could be taught. In the summer of 1879 he had his own first clinical class, working with his students through Gee's *Auscultation and Percussion*. The next five years passed in teaching physiology and pathology in the winter session and clinical medicine in the summer. In 1884 he spent four months in Germany, chiefly at Leipzig, working at pathology with Weigert and clinical medicine with Wagner.

Philadelphia.

His reputation as an inspiring, keen, and successful teacher, his character as a man, his attracting personality, and his enthusiasm for hard work, were known and appreciated far beyond Montreal, and after ten years there he was, in 1884, appointed to the chair of clinical medicine in the University of Pennsylvania, Philadelphia, then the premier medical school in the States, in succession to Dr. William Pepper. The invitation to the chair reached him whilst he was in Leipzig, and he treated it first as a practical joke, one in retaliation for similar efforts on his own part, and for a time did not reply. It was, however, serious enough, and he accepted it, leaving Montreal "a rich man, not in worldly goods, for such I have the misfortune—or the good fortune—lightly to esteem, but rich in the goods which neither rust nor moth have been able to corrupt—friendship, good fellowship, wider experience, and fuller knowledge."

Johns Hopkins.

At Philadelphia, as everywhere, teaching work was his first care, and hospitals and medical societies absorbed the greater part of his time; he lived the peaceful life of a student with students, who were the inspiration of his life and of his work. The teaching there was by lectures and the theatre clinic. Ward classes for physical diagnosis were held, but clinical clerks were unknown, and theoretical lectures occupied a large share of the student's time. Osler broke new ground there by starting a small clinical laboratory. After five years at Philadelphia he was elected to the chair of the Principles and Practice of Medicine in the Johns Hopkins University, Baltimore, and physician to the Johns Hopkins Hospital. That hospital was by the will of the founder to form part of the Medical School, and be an institution for the study as well as the cure of disease. Osler had been appointed early enough to take part in the organization of the clinical work and teaching, and thus had a leading share in establishing, for the first time in an English-speaking country, a hospital embodying the principle of hospital units, each in charge of a director. The day after he accepted office he met Dr. Gilman, President of the Johns Hopkins University, at the Fifth Avenue Hotel, New York, so that they could study the management of the hotel, there being, in Dr. Gilman's opinion, no great difference between the general management of a hotel and a hospital. They found that each department of the hotel had a responsible head, and over all a director; on this plan were modelled the arrangement and management of the hospital units. The university had not sufficient funds to open a medical school at the time, and so for several years post-graduate teaching alone was conducted there. Osler thought this a fortunate circumstance, for it gave time to complete its organization. There was nothing in his life in which he took greater pride than his connexion with the organization of the hospital, and with the introduction of English methods of practical instruction. He desired no other epitaph than the statement that he taught medical students in the wards. He firmly believed in the value to a university of the publication, even at a



Yours sincerely
W. Osler

Photo. Elliott and Fry.

monetary loss to it, of original work carried out in its schools, and he used to say that the Johns Hopkins *Reports* and *Bulletin*, issued in connexion with its medical school, had amply repaid the university for the money and trouble expended on them. When he went to Johns Hopkins his ambition was to build up a great clinic where the professor should have an organized body of assistants and house-physicians, and where the student should be taught not by didactic lectures, but in the wards and the laboratory.

Influence on Medical Education.

He was never a whole-time professor, and even in 1914 he was not in favour of the whole-time clinical teacher, because his life had been largely spent in association with his professional brethren, participating in the many interests they had in common. At the same time he confessed that he mistrusted his own judgement on this point, as it was a problem for young men and for the future.

He described his own method of conducting clinical teaching before the Abernethian Society, St. Bartholomew's Hospital, in 1913. The detailed ramifications of his teaching are remarkable. An essential feature of it was that students were set tasks of seeking information on any point of interest that cropped up in the class, the teacher telling them in what books to look for it, and they had to report to the class at a subsequent meeting.

Osler was an excellent clinical observer, and he attributed most of his success in this to his thorough grounding in the results of disease which he gained as pathologist at Montreal. He did a great deal of original work himself, and he had the happy faculty of inspiring others with his own enthusiasm for original investigation, and his charming personality and manner attached to him in the course of his life hundreds of young men who thought it a great honour and gain to them to be allowed to work for or with him. He always gave proper credit for work done by others, whenever and wherever it was due, and never forgot his assistants.

He had three ideals: "To do the day's work well and not bother about to-morrow; to act on the Golden Rule towards his professional brethren and patients; and to cultivate a measure of equanimity to enable him to bear success with humility, affection of friends without pride, and to be ready when the day of sorrow and grief came to meet it with courage befitting a man." The first of these ideals he elaborated in his address to Yale students, 1913, and published in small pocket-book form as *A Way of Life*.

Oxford.

When Sir John Burdon-Sanderson, the Regius Professor of Medicine at Oxford, resigned in 1904 the graduates of the University met and expressed the opinion that the new occupant of the chair should be a physician representative of medicine in its widest sense. Dr. Burdon Sanderson had previously been Waynflete Professor of Physiology and apparently could not be described in the terms of the graduates' resolution, and when finally Dr. Osler accepted the chair (1905) it was universally agreed that Oxford had obtained such a man as it hoped for. It may be noted here that he had been elected a Fellow of the Royal College of Physicians in 1883 and a Fellow of the Royal Society in 1898.

The reasons why he gave up work into which he entered heart and soul were given by himself subsequently (BRITISH MEDICAL JOURNAL, January 3rd, 1914, p. 16):

> I know how hard it is "to serve God and Mammon," to try to do one's duty as a teacher and to live up to the responsibility of a large department, and at the same time to meet the outside demands of your brethren and of the public. And if added to this you have an active interest in medical societies, and in the multifarious local and general problems, the breaking-point may be reached. I had had thirty-one years of uninterrupted hard work. William Pepper, my predecessor in Philadelphia, died of angina at 56; John Musser, my successor, of the same disease at 53! After listening to my story you may wonder how it was possible to leave a place so gratifying to the ambitions of any clinical teacher: I had had a good innings and was glad to get away without a serious breakdown.

For the following estimate of Sir William Osler's influence in Oxford we are indebted to Dr. CHARLES SINGER:

"Perhaps only those who have known the medical school at Oxford both before and after Osler's arrival can estimate fully the change wrought by his personality, not only in the mechanism, but in the whole spirit. Among Osler's predecessors in the chair at Oxford have been men of the very highest scientific distinction, but few or none had that kind of knowledge which comes of a long life of clinical teaching and of a wide experience of a variety of medical schools. This was Osler's special asset, and it was associated in him with actual scientific attainments and humanistic sympathies that have probably not been found in combination to a like degree in any one medical teacher since the days of Boerhaave.

"When Osler first came to Oxford medicine was indeed recognized by the university both by reason of the antiquity of the endowments that existed to promote it and because it was generally allowed to be a part of the *organon* of knowledge. But the school was exiguous in dimensions and in many ways cut off from other departments of university activity. There was thus very little temptation to select Oxford in preference to other medical schools, and a large proportion of its students—and these among the most gifted—were men who came to medicine not as a first choice but after having completed a course in some other faculty. Excellent work was done in Oxford in those days under the most difficult conditions, but it is no injustice to a bygone system to say that in the nature of the case it could attract only the few.

"With the advent of Osler all this was changed. First, his own manifold attainments provided a natural link with other departments. His enthusiasm for learning was, from his first settling in Oxford until his last public utterance, exerted in the direction of bringing the great resources of medical history, in the widest sense, into relation with the general cultural stream. This movement, he clearly saw, could not fail to react on the status and attainments of medical men as a whole. He had himself been the witness of so many changes in the practice of medicine, and his own thoughts and education had been so deeply tinged with the reflections of the past, that it was natural, in the eventide of his life, that he should turn so largely to tempering visions of what might be with musings on what had been. This extraordinary range of intellectual interests it was that chiefly marked him out and gave him his supreme quality—judgement. It is for the degree to which he possessed this quality, rather than as a pioneer or investigator, that posterity will remember him, as it remembers his great prototype Boerhaave. Not that either of these men lacked scientific powers or failed of scientific achievement. But it was their power of judgement, drawn, on the one hand, from great stores of experience and, on the other hand, from great powers of vision, that gave them their quality as teachers and as inspirers of others, and their insight as physicians. It was certainly this that was the primary source of Osler's influence at Oxford.

"As soon as Osler came to Oxford he recognized the need of bringing the academic teaching of medicine there more fully into touch with the realities of practice. He not only threw all his weight into the adequate development of the departments of pathology and physiology, but he immediately discerned the need and the possibility of an extension there of clinical teaching. He saw that Oxford, a town of between 50,000 and 60,000 inhabitants, could not be a very great clinical school, but he knew from practical experience the special value that an academic atmosphere may give to clinical instruction and the value also that comes from an intensive study of material—a method either difficult or impossible in many busier centres. He thus succeeded in linking up scientific investigation and clinical experience. Nor will this method disappear with his direct influence, for he has inspired and left behind him a number of younger and distinguished exponents who will carry on his tradition.

"Osler was gifted with those peculiar qualities of heart as well as of head that made it always seem to those in his company that their own interests were his also; but the seeming was something more than a mere appearance—it was a reality. It may have seemed that in his later years his interests moved predominantly in the direction of literary and historical pursuits. This element in his character was, however, a new thing, and was a development that comes to many as experience grows in richness and variety. It arose in him, at least, from none of that failure of the forward looking power that goes with age, but rather from something that is almost its opposite. He seemed to have a great sense of continuity, and this

gave rise, on the one hand, to his love of antiquity, especially as expressed in the historical method, and, on the other hand, to his love of young people, and his constant desire to have active and moving minds around him. He was no mere antiquarian. It was the living past that appealed to him, the past that he traced in the present and foresaw in the future. For such a spirit Oxford was an ideal home: Oxford with its inexhaustible store of ancient memories and its young and progressive medical school, Oxford with the researches of its scholars and its scientists going on endlessly side by side. Into the heart of this complex place Osler did not creep but leapt, and became at once a part and parcel of it, influenced by it and loving it, but never losing his own rich and complex personality that had been moulded by other forces of which, as yet, Oxford knew but little.

"And so it came about that he retained in Oxford just those powers of making his surroundings react to him that had been discerned in him in other and less conservative environment. This was the secret of his power, and this it was which enabled him to raise the Medical School at Oxford to the position that it now occupies."

Mr. R. W. CHAPMAN, assistant secretary of the Clarendon Press, tells us that Sir William Osler became a Delegate of the Oxford University Press in 1905, and was recently made a Perpetual Delegate in the room of Dr. Sanday. "His immense knowledge," Mr. Chapman continues, "and great influence, his antiquarian tastes and bibliographical lore, made his help and counsel of great value to an institution which has its roots in the past and claims its place in the forefront of modern research. Osler's name will always be connected with the *Quarterly Journal of Medicine*, the publication of which by the University Press was due to his initiative. It is not so well known how much the series of Oxford Medical Publications, which began during his tenure of office, owed to his constant care and wise direction. The Press has in preparation *A Physician's Anthology*, a collection of verse made by some of his friends in his honour. All who are connected with the Press deplore that what was designed as a gift can now be no more than a memorial. His loss will be felt as a real blow, the more so as it follows immediately on the untimely death of Mr. Charles Cannan, who, as Secretary to the Delegates, had worked with Osler for many years."

Writings.

No attempt could be made here to enumerate his many writings, beginning in 1872 with reports in the *Canadian Medical and Surgical Journal* of cases in the wards of the Montreal General Hospital. The bibliography given in the July number of the *Johns Hopkins Hospital Bulletin*, which celebrated his 70th birthday, contained 730 titles of books and articles by him during the forty-nine years 1870–1919. His chief book, *The Principles and Practice of Medicine*, made its first appearance in 1892, and at once had an enormous success not only with students but with medical men in all English-speaking countries. Many editions were called for, and each was carefully revised to keep it abreast of the progress of knowledge. An eighth edition appeared in 1916. He was the editor, with Dr. Thomas McCrae, of a *System of Medicine* in several volumes. In 1889 he wrote on the cerebral palsies of children, and in 1897 on angina pectoris and allied states. In addition to his very numerous writings on clinical and pathological subjects, he from time to time delighted the profession by an address on some subject in the borderland of medicine and literature or science. In one of these he urged the student to allot a portion of each day to books not connected with medicine. "Before going to sleep read for half an hour, and in the morning have a book on your dressing table. You will be surprised to find how much can be accomplished in the course of a year." He himself found recreation in biography, and had a strong conviction of its value in education. He often chose a biography for the subject of an address, and a series were collected in the volume entitled the *Alabama Student and other Biographical Essays*, published in 1908. The subjects chosen for the biographies in this volume were nearly all medical men: John Keats, the apothecary poet, John Lock as a physician, Oliver Wendell Holmes, Sir Thomas Browne. Those who knew the boyish side of Osler's nature can realize the zest with which he hunted out the story of the buccaneering expedition in which Thomas Dover, physician and buccaneer, was third in command, an expedition which found Robinson Crusoe in 1710, and finally realized the enormous sum of £170,000. Osler's love of history came out even in his *Principles and Practice of Medicine*, where he gave an account of the origin and growth of knowledge of the various diseases, and mentioned the men who had pieced it together. Perhaps of his occasional addresses that which best revealed his learning and sense of fun was that on "The Old Humanities and the New Science," which he delivered to a meeting of the Classical Association at Oxford in May, 1919. Its publication in our columns on July 5th, 1919, gave great and abiding pleasure to thousands of readers.

Osler loved the society of young people, and knew well how to gain their confidence. His cheery optimism appealed to them, and when he visited a large hospital he delighted to get into the common room and chat about anything and everything—and there were few matters about which Osler did not know something. He would confess that he found this association with young men very helpful to a teacher, and that he believed that it not only enabled him to understand their ideas and difficulties, but kept the teacher himself from stereotyping his mind. He was, when the subject needed it, an impressive speaker, but his lighter utterances and after-dinner speeches were full of humour, wit, and broad fun.

Honours.

He received many honours. He was made a baronet at the time of the coronation of King George V; he was honorary professor of medicine in Johns Hopkins University; he received the honorary degree of D.Sc. from the universities of Oxford, Cambridge, Dublin, Liverpool, and Leeds, that of LL.D. from the universities of McGill, Toronto, Aberdeen, Edinburgh, Yale, Harvard, and Johns Hopkins, and the D.C.L. from the universities of Durham and Trinity, Toronto. He was a foreign associate of the Academy of Medicine, Paris, and received the honorary degree of M.D. from the university of Christiania. On July 11th, 1919—the day before his 70th birthday—he was presented, in the name of a large number of subscribers, with a collection of essays in two volumes, written by some 150 representative members of the profession on both sides of the Atlantic. The presentation was made by his "brother of Cambridge," who said that the occasion was one anniversary of many years of supreme service in two kindred nations and for the world. "But while thus," Sir Clifford Allbutt continued, "we celebrate your leadership in the relief of sickness and adversity, we are far from forgetting the sunnier theme—the debt, none the less, which we owe to you in other fields of thought. In you we see the fruitfulness of the marriage of science and letters, and the long inheritance of a culture which, amid the manifold forms of life, and through many a winter and summer, has survived to inspire and adorn a civilization which so lately has narrowly escaped the fury of the barbarian." In a moving reply, Sir William Osler spoke of himself "loving our profession and believing ardently in its future; I have been content to live in it and for it," and added characteristically, "Nothing in my career has moved me more, pleased me more, than to have received letters from men at a distance; men I have never seen in the flesh, who have written to me as a friend."

Sir William Osler married in 1892 the eldest daughter of the late John Revere of Massachusetts, and great grand-daughter of Paul Revere. Their only child, a son, who was born in 1896, died in France, 1917, from wounds received in battle.

The Last Years.

To Dr. ARTHUR THOMSON, Professor of Human Anatomy at Oxford, we are indebted for the following note of Osler's life and influence in Oxford, and of his death:

"In 1905 Osler came to Oxford with a great reputation. That he has lived up to it, and given us of his best, is attested by the affection which his memory invokes. After the strenuous hustle of American life, the rest and calm of Oxford appealed to him. It is pleasant to know that the years spent here were amongst the happiest of his life. The surroundings were such as he delighted in, the society

was congenial, and the duties of his office, not overburdensome, were such as to give him ample scope for his activities, and free play for his broad outlook on life.

"Gifted with a remarkable memory, and equipped with an almost limitless experience, he never seemed to forget anything he had either seen or read. He had a marvellous power of marshalling facts and getting at the essentials. Quick to realize the ever-changing needs of the times, he was always in the forefront of progress. There was a brightness and sparkle about his views which won approval and disarmed opposition. At a meeting, whenever Osler was in the chair, the proceedings were never dull, and business was usually expeditiously transacted. He had clear views as to what he wanted, and generally got his way, and, be it here recorded, his way was usually the best way.

"Of a nature most generous and kind, he was ever mindful of the trials and sorrows of others. Many will there be this day who remember with loving affection the comforting words with which he soothed their sore-tried hearts. To those engaged in the struggle of life he was full of encouragement, wise counsel, and often substantial aid. Even of the failures in life he had always something good to say. With qualities such as these can it be wondered at that he endeared himself to all who were fortunate enough to be of his acquaintance. We in Oxford know it, and now cherish the memory of his sympathetic personality.

"His delight was in books; he was never happier than when showing some recently acquired treasure. Much of his leisure was spent in the Bodleian, of which he was a curator, and his expert advice was of invaluable service to the Delegates of the Clarendon Press.

"By virtue of his office he was Master of the quaint old almshouses at Ewelme, Oxfordshire. Nothing gave him greater pleasure than to whisk off by motor car a party of American visitors, there possibly for the first time, to introduce them to the beauties of this most picturesque of English villages; it remains as a lasting memory to many who were privileged to make the visit.

"Of his work in the Medical School what need be said that is not known? He cheered us by his breezy presence, and left us all the heartier with some quaint quip or jest. None the less, he was alert and observant, and oftentimes we benefited by some shrewd remark or friendly criticism. It was around the Radcliffe Infirmary that his activities mainly centred; he was largely instrumental in getting the new Clinical Laboratory built there, and much of his time was devoted to the introduction of appropriate clinics in that institution.

"The war told badly on Sir William. Like many others, he lost his only son; it hit him hard, but he never winced. As he said to me, 'Ours is a common sorrow; we must think of others as well as ourselves.' In consequence he immersed himself in duties innumerable, particularly in connexion with the hospitals under Canadian and American control. He was always responsive to the appeal of friends from abroad who were anxious to obtain news of their wounded sons. This often entailed long and tedious journeys, and the strain told on him; he was a worn and tired man.

"When peace came, bringing with it the brighter outlook, he began to pick up; and when, this autumn, he returned from a holiday in the Channel Islands, he was a new man, with all the old vitality back again; for it appears that under the genial influence of the Jersey climate, with boyish glee, he had been indulging in all sorts of acrobatic performances, such as standing on his head and turning cartwheels on the sands—wonderful feats for a man of 70. Accordingly we were all buoyed up by the hope that our Regius had still many years of active life before him.

"Called in consultation to Glasgow, he was caught by the railway strike; he managed to get as far south as Newcastle, and there he was held up. Anxious to get home, he undertook the long motor journey to Oxford. He arrived a sick man, and, despite the care and attention of those who tended him so lovingly and long, he passed away with the fading light on the afternoon of December 29th. 'Gone west' as he would have wished, for he often talked of the land of his birth and adoption."

Sir William Osler was a student (fellow) of Christ Church, and the funeral service was to be held at Christ Church Cathedral on the afternoon of New Year's day.

CHARLES LOUIS TAYLOR.

Formerly Assistant Editor of the BRITISH MEDICAL JOURNAL.

IT was a sad group that assembled at St. Mary's, Kensal Green, on the morning of Christmas Eve, when Charles Louis Taylor—who was for over thirty years on the staff of the BRITISH MEDICAL JOURNAL, and for twenty years Assistant Editor—was laid to rest. He died on Sunday, December 21st, aged 70.

He was the only child of Dr. Charles Taylor, of Peterhead, Aberdeenshire, who died at the age of 24 of cholera contracted when attending victims of the epidemic in the neighbouring village of Boddam. His widow went with her infant son to reside in France, and he first went to school at Noyon. At the age of 6, speaking only French, he returned to Scotland, and was sent as a pupil to the Reverend Dr. Kemp at Dufftown. At the age of 11 he was promoted to Blairs' College, Aberdeen, and during his four years there received a thorough grounding in the classics. He was transferred in 1864 to the Scots College, Valladolid, where he remained four or five years. He would sometimes speak of his experiences there—the rigid discipline, homely fare, and the continuous study of ancient learning, Latin being the colloquial language. It was during this period, however, that his acquaintance with English literature, which eventually became wide and deep, began. Finding that he had no vocation for the priesthood, he returned to this country with the intention of entering the Indian Civil Service, but when he applied was a few months over age. After a few years, during which he spent much time in France reviving his knowledge of French, he determined to follow his father's profession and entered the medical school of University College, London, in October, 1873. He was a good student, reserved, but greatly liked by his few intimates, as well as by those members of the staff who got to know him. He passed through the whole curriculum with credit, and held the usual students' appointments, but could never be induced to sit for an examination and never qualified. He acted as house surgeon to Mr. Berkeley Hill at University College Hospital for four or five months and held several other temporary appointments there. His upbringing had given him a colloquial command of French, Spanish, and Latin; he had a working knowledge of Greek, Italian, and Portuguese, and later on taught himself to read German. These linguistic attainments were to serve him well.

In 1880 he became secretary to Sir Morell Mackenzie, who had just published the first volume of his *Manual of Diseases of the Nose and Throat*. Taylor gave him much assistance in the preparation of the second volume, which was acknowledged in the preface, where the author expressed his "deep obligations to Mr. C. L. Taylor for his invaluable help." The second volume was not published until 1884; it is still, we believe, highly esteemed by laryngologists, and Taylor's share in giving to it the qualities as a book of reference which have caused it to survive was large.

Louis Taylor joined the editorial staff of the BRITISH MEDICAL JOURNAL in 1886, and became Assistant Editor in 1897, retaining that position until 1917, when ill health compelled him to resign. Thus for over thirty years he served the BRITISH MEDICAL JOURNAL, accepting increasing responsibilities, and faithfully fulfilling all obligations with unremitting diligence. A great deal of the work, as is inevitable in an editorial office, was of a routine kind, but his vigilance never slept, and from how many pitfalls, for the careless or unskilled, contributors were saved, few of them were aware. It was characteristic of him to detect an error in a name or title, or, with much expenditure of time and patience, to track down a wrong reference, and yet to content himself with an inquiry, half humorous, half sad, as to the reason why scientific writers were so prone to the sin of misquotation. Should, however, an error creep in—and this may happen even with the most vigilant of editorial staffs—he would acknowledge it with his customary good humour, and, in correcting it, perchance have a quiet dig at that chief of offenders, the printer's devil. In course of time he made himself a master of certain subjects which were recurring causes of public controversy. For example, he studied the literature of vaccination and grew familiar alike with every step by which Edward Jenner established his discovery, and with every phase of the controversy provoked by its modern opponents. One result of his

researches was seen in the Jenner Centenary Number of the BRITISH MEDICAL JOURNAL, published in 1896. He also followed closely and systematically the activities of the antivivisectionists, and was ever ready to meet their champions with facts and arguments. Here again his accurate habit of mind and a style which could be both polite and caustic served him well. Satire, and ridicule if necessary, were among the weapons he employed to confound his antagonists, and more than one "anti" this or "anti" that has been reduced to silence as his weapon found its mark. Later on he studied "Christian Science," and could have stood a cross-examination on the writings of Mrs. Eddy. He had the forensic faculty of getting up a case, combined with the power of retaining the story in memory and of reconstructing it in detail at short notice.

In the early days of his connexion with the BRITISH MEDICAL JOURNAL he did a certain amount of literary work in other directions. Thus, he assisted the late Mr. Marcus Beck in producing the ninth edition of Erichsen's *Science and Art of Surgery* in 1888; again, when the tenth edition was published in 1895, under the editorship of Mr. Raymond Johnson, his assistance was called in, and on both occasions its value was mentioned in the preface. He also helped in the translation of Gruber's textbook of *Diseases of the Ear* by Dr. Edward Law, who made a suitable acknowledgement in the preface. He was also for a time a frequent contributor to *Truth*, but his interest lay rather in historical research than topical discussion. His liking for biography made him accept with alacrity a request to edit a set of biographies with the general title, *Masters of Medicine*, planned by the late Mr. Ernest Hart. Eight volumes were published, and one on Vesalius by Taylor was announced. The series, however, was discontinued, and the book, preparations for which had occupied much leisure time, was never written.

After his appointment to be Assistant Editor he seldom wrote except for these pages. The interest shown in some of his casual notes on historical subjects led him to suggest the establishment of the series of articles which, under the general heading "Nova et Vetera," appeared at short intervals for many years. That they were much appreciated by many readers there was ample evidence. Taylor did not write them all, but he wrote the majority. Though he never signed his name the authorship became known to some of those interested in the history of medicine, and a few years ago, on the proposal of Sir William Osler, he was elected an honorary Member of the Section of the History of Medicine of the Royal Society of Medicine. He appreciated the courtesy but did not make much use of the opportunities it afforded. His close friend the late Lord Ilkeston persuaded him to join the Reform Club, but he did not long retain his membership. This might at first seem strange; with his genial manner and fund of anecdote he might have been considered the ideal clubman. He, however, was happiest when among his books in his "den," and, above all, in his home life. Public and official functions had no attractions for him.

During the illness of the Editor, consequent on an accident in July, 1910, Mr. Taylor was responsible for the conduct of the JOURNAL during the next four or five months, which included the Annual Meeting in London that year. Amidst the pressure of other duties he found time to edit the Guide Book issued in connexion with that meeting. For this he received the thanks of the Association.

His leaning to the study of the history of medicine found an outlet in several special issues of the BRITISH MEDICAL JOURNAL, in particular in the Jubilee Number published in 1897 on the occasion of the sixtieth anniversary of Queen Victoria's reign.

Though not of robust constitution—he had intermittent glycosuria for many years—he enjoyed good general health until between six and seven years ago, when he began to suffer from symptoms which, becoming suddenly exacerbated, necessitated an abdominal operation performed by his old fellow student, Mr. Bilton Pollard. Recovery was slow, but he was eventually able to return to his post for several years. Increasing infirmities compelled him to tender his resignation, which took effect in March, 1917. Since then he had lived in retirement. His last illness, due apparently to glycosuria, began about six weeks before his death.

Mr. Taylor was a man of genial and kindly temperament which endeared him to all those with whom he worked. He was a loyal colleague, and his fund of knowledge of the past and present of medicine which he was always ready to produce in conversation made him an interesting and stimulating companion. He will long be held in kindly remembrance at the office of the Association.

Mr. Taylor married in 1882 the daughter of Mr. James Goodman of Bletchley. He is survived by his widow, two daughters, and his son, Dr. C. J. G. Taylor of Nuneaton, who served throughout the war as Surgeon R.N.V.R.

Universities and Colleges.

UNIVERSITY OF SHEFFIELD.

CLINICAL DEMONSTRATIONS.

THE Faculty of Medicine has arranged for a series of clinical demonstrations on special subjects to be given at the Royal Hospital, West Street, during the next three months of the winter session, as follows:

Mondays at 3.30 p.m.: *X* rays in Diagnosis and Treatment, Dr. W. H. Nutt.
Tuesdays and Fridays at 4 p.m.: Diseases of the Eye, Dr. P. J. Hay.
Wednesdays at 3.30 p.m.: Diseases of the Ear, Nose, and Throat, Dr. G. Wilkinson.
Thursdays at 3.30 p.m.: Diseases of the Skin, Dr. E. F. Skinner.

The course will begin on Monday, January 19th, and will be continued each week until the end of March. The demonstrations are open to all qualified practitioners free of charge. It will facilitate arrangements if those wishing to attend any or all of the courses will send in their names and particulars to the Registrar, the University, Sheffield, on or before January 10th. A full syllabus and time table will be forwarded on application.

UNIVERSITY OF ST. ANDREWS.

THE following candidates have completed the Final Examination for the degrees of M.B., Ch.B.:

Mildred Clark, Andrewina Laird, Florence B. Mason.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

THE following candidates have been approved at the examinations indicated:

FINAL M.B.—*Part I, Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Pathology:* *Daniel de Bruijn, *D. J. Browne, *Dorothy A. Daly, P. Jabkovitz, Rev. E. G. Campbell, J. C. Davis, Mary Horan, F. W. Pienaar, F. W. Shegog, P. Ryan, Nora Griffith, C. S. Wilson, R. R. Baker, Elinor D. Stopford. *Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene:* J. D. Leahy, W. A. Murphy, R. H. J. M. Corbet, A. D. Ward, G. S. Moran, J. M. Semple, J. R. Wills, R. W. Power, A. J. Beckett. *Pathology (in completion):* J. C. Brennan, R. V. Dowse, H. A. Lavelle, C. W. Parr.

FINAL M.B., B.CH., B.A.O.—*Part II, Midwifery:* *E. H. C. Allen, *Olive Baile, W. de Vos Scholtz, Essie S. Smyth, J. H. B. Crosbie, J. P. de Villiers, W. B. J. Pemberton, S. L. Feldman, J. B. Maguire, E. H. Frazer, W. B. Fox, W. T. Micks, B. F. Haythornthwaite, C. E. McQuade, J. Hirschmann. *Surgery:* *L. Abrahamson, *J. G. Holmes, T. D. Gordon, C. J. de V. Shortt, H. A. Lavelle, Doris L. Graham, W. A. Byrn, R. E. Murphy, Jessie Gilbert, Johan F. Wicht, M. Nurock, R. W. Shaw, A. L. Steyn, S. J. Laverty, H. Cohen, A. Blagoff. *Medicine:* *L. Abrahamson, *F. W. Robertson, F. V. Small, J. G. Holmes, W. de Vos Scholtz, W. J. Hogan, T. D. Gordon, J. F. Wicht, H. A. Burridge, J. Hirschmann, R. W. Shaw, R. Counihan, Moira M. Brown, J. R. Waugh, W. A. Byrn, H. Cohen, C. J. de V. Shortt, F. W. Godbey, T. Madill.

D.P.H.—*Part I, Chemistry, Bacteriology, Physics, and Meteorology:* V. M. Synge, R. E. Wright, G. G. P. Beckett, N. H. H. Haskins, G. F. I. Harkness, W. H. Sutcliffe, J. S. Dockrill, G. O. F. Alley. *Part II, Sanitary Engineering, Hygiene, Epidemiology, Vital Statistics, Public Health Law, Sanitary Inspection and Report:* V. M. Synge, M. McKnight, R. E. Wright, G. G. P. Beckett, N. H. H. Haskins.

DIPLOMA IN GYNAECOLOGY AND OBSTETRICS.—R. W. Chambers.

* Passed on high marks.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following candidates passed the examination of this school at the termination of the sixty-first session:

*J. T. Duncan, *W. G. Seymour, *M. E. Barnes, *C. C. Chesterman, *E. C. Girling, *M. Bequaert, *R. Calleja, *A. Kidd, *E. S. Johnson, *H. Lillie, *G. F. Scuddar, *W. Dawson, *W. F. Hume, *G. M. Heydon, L. N. Lee, A. N. Bose, G. Chesney, R. Chalmers, J. H. Thomson, W. R. Young, E. C. Spaar, H. M. Pope, A. G. Fergus, J. Boodoosingh, P. F. Nunan, H. W. Webb, R. C. Briscoe, A. J. Galustian, T. D. Nair, P. W. Barnden, D. P. Jarjasingha, J. L. A. Sorensen, N. Cheua.

* With distinction.

The Services.

INDIAN MEDICAL SERVICE.

TEMPORARY COMMISSIONS.

THE Secretary of State for India makes the following announcement:

Fully qualified European medical practitioners are required for temporary service with Indian troops on special rates of pay. Applicants must be British subjects of European descent, and should not be more than thirty-five years of age. If accepted for appointment they will be required to enter into a contract to serve for two years.

The rates of pay will be Rs. 700 per mensem for a lieutenant, Rs. 750 per mensem for a captain. Three or more years' service as a medical officer in the home, colonial, or Indian forces are necessary to qualify a candidate for the higher rate. Officers will be provided with free passages both ways. Wives and families will be sent out at Government expense in the autumn of 1920, provided that shipping is available. An outfit allowance of £50 will be granted except in the case of officers who have served under the War Office or the Government of India, to whom £20 only will be issued.

Further particulars and forms of application may be obtained from the Secretary, Military Department, Room 157, India Office, Whitehall, S.W.1. Envelopes should be clearly marked in the top left-hand corner "Temporary I.M.S."

*** It must be remembered, first, that the price of the rupee varies and that the exchange is hardly likely to be maintained at the present rate, and, secondly, that a large part of the officer's income must be spent in India, where the rupee is worth no more, but decidedly less, than it was worth before the recent rise in the exchange. This matter is referred to in a Current Note in this week's SUPPLEMENT.

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS.

THE usual quarterly committee meeting was held on December 19th, 1919, at 11, Chandos Street, Cavendish Square, W.1. Three grants were made in the benevolent branch for officers, amounting to £290, and fourteen grants in the relief branch for the rank and file, amounting to £624.

These funds are for the relief of widows and orphans of commissioned officers and non-commissioned officers and men of the rank and file of the Royal Army Medical Corps, Special Reserve, Territorial Force, and New Armies, and also for the relief of the children of those who have been so severely damaged in the present war that they need help for the education of children.

Bequests for relief should be addressed to the Honorary Secretary, at the offices of the funds, at 11, Chandos Street, Cavendish Square, W.1.

HONOURS.

C.B.

Surgeon Commander D. W. Hewitt, C.M.G., R.N., has been appointed C.B. (Military Division) for valuable services as Senior Medical Officer on the staff of the Senior Naval Officer, White Sea.

C.B.E.

The distinction of C.B.E. (Civil Division) has been awarded to Dr. Cecil Henry Elmes, O.B.E., officiating health officer, Port of Calcutta, Bengal, in recognition of valuable services rendered in India in connexion with the war.

O.B.E.

The O.B.E. (Military Division) has been conferred upon Surgeon Lieut. Commander R. H. McGiffin, R.N., for valuable services rendered in the Archangel area of the White Sea; Surgeon Lieut. Commander A. A. Sanders, R.N., and Surgeon Lieut. Commander F. St. B. Wickham, R.N., for valuable services rendered in H.M.S. *Glory* and H.M.S. *Hyderabad* in Russia respectively.

Miss Ruth Balmer, M.B., honorary Captain R.A.F. Medical Service, and Flight Lieutenant Robert Lloyd Roe, M.B., R.A.M.C., have received the same distinction in recognition of distinguished services in North Russia and the Mediterranean area respectively during the war; and temporary Lieut.-Colonel Raghabendra Row, I.M.S., and Captain Dais Raj Ranjit Singh, I.M.S., Cecil Henning Lincoln, M.B.E., assistant surgeon I.M.D., and Dr. Samuel Arthur Powell, police surgeon, Bombay, in recognition of valuable services rendered in India in connexion with the war.

M.B.E.

Captain Arthur George Brown, I.M.S., has been appointed M.B.E. (Military Division), and Khan Bahadur Mir Diwan Ali, civil surgeon, Multan, Punjab, Dr. George Noble Coombes, chief medical and sanitary officer of the Cochin State, Madras, Mr. John David O'Donnell, F.R.C.S.Ed., chief medical officer, Kolar Gold Field, Mysore, and Randhir Singh, subassistant surgeon, General Hospital, Rangoon, Burma, M.B.E. (Civil Division), in recognition of valuable services rendered in India in connexion with the war.

Foreign Decoration.

The President of the French Republic has conferred the Croix d'Officier de la Légion d'Honneur upon Surgeon Captain O. W. Andrews, C.B.E., R.N., for distinguished services rendered during the war.

Medical News.

AN announcement appears at page 34 giving particulars of a series of clinical demonstrations on special subjects arranged by the Faculty of Medicine of the University of Sheffield. The course will be given at the Royal Hospital during the ensuing three months, beginning on January 19th. The demonstrations are open to all qualified practitioners free of charge. Those wishing to attend should communicate with the Registrar of the University, who will forward particulars.

COLONEL W. MITCHELL ROOCROFT, C.M.G., consulting surgeon to the Wigan Infirmary, and Dr. Luther Cooke, also of Wigan, have been appointed Justices of the Peace for the County Palatine of Lancaster.

DR. D. W. CARMALT-JONES, F.R.C.P., Physician to Westminster Hospital, late Colonel A.M.S. and Consulting Physician to the Egyptian Expeditionary Force, has been appointed to the Chair of Systematic Medicine in the University of Otago.

THE old students' dinner of St. Thomas's Hospital, postponed from October 1st on account of the railway strike, will take place at the Connaught Rooms, Great Queen Street, W.C., on Wednesday, January 14th, at 7 o'clock for 7.30, under the chairmanship of Sir George Makins, G.C.M.G., P.R.C.S.

THE annual dinner of past and present students of St. Mary's Hospital, which was postponed from October 1st, will take place at the Connaught Rooms, Great Queen Street, on Friday, January 9th, at 7 for 7.30 p.m. Sir Almroth Wright, K.B.E., C.B., will be in the chair.

THE Public and Secondary Schools' Red Cross Hospitals have handed over to the Village Centres Council, 51, Lincoln's Inn Fields, London, W.C.2, the balance of their funds, amounting to £3,500.

A COURSE of ten lectures and demonstrations has been arranged by the Royal Institute of Public Health on Thursdays, at 5 p.m., in the lecture room of the Institute, 37, Russell Square, W.C. The first lecture will be given on January 15th by Professor E. W. Hope, M.O.H. Liverpool, on schemes and methods in tuberculosis work. On January 22nd Dr. T. D. Lister will give a practical demonstration of the work of a tuberculosis department at the Poplar Dispensary for the Prevention of Consumption, 135, Bow Road, E. The course is open to medical men and women qualifying to become tuberculosis officers, and for general practitioners and others interested in the study of tuberculosis. The fee is two guineas.

THE opening address of the spring session of the North-East London Post-Graduate College—the first session since the beginning of the war—will be given by Sir Humphry Rolleston, K.C.B., M.D., chairman of the Fellowship of Medicine and Post-Graduate Medical Association, president of the Royal Society of Medicine. The subject of the address, which will be given on Tuesday, January 13th, at 4.30 p.m., at the Prince of Wales General Hospital, Tottenham, N.15, is the uses and methods of application of post-graduate teaching. Medical practitioners wishing to be present may receive a card of invitation on applying to the Dean.

A COURSE of instruction on the diseases of children will commence at the London Hospital Medical College on Saturday, January 10th. The course is open to post-graduates and students of the hospital. Dr. Hutchison will give a course of ten lectures on general diseases on Saturdays, at 10.15; and Dr. Theodore Thompson a course of eight lectures on organic and functional nervous diseases, meningitis, and mental deficiency on Mondays, at 9.15 a.m. A course of clinical demonstrations will be given in the out-patient department by Dr. Charles H. Miller, at 10 a.m. on Wednesdays.

AT the meeting of the Executive Committee of the Medical Defence Union on December 22nd, 1919, the General Secretary reported that three members had forwarded donations to the funds of the Union as a mark of their appreciation of the services rendered to them by the Union in cases in which they had recently had occasion

to apply for assistance. One of the members stated that the amount of his donation (which was substantial) was really no measure of his gratitude.

SIR ROBERT HUDSON, Chairman of the Joint War Finance Committee, has reported that the total amount received by the Joint Council of the British Red Cross and Order of St John since the outbreak of war has fallen little short of 19 millions. The balance remaining in hand is large; the primary purpose to which it must be devoted is to relieve the needs of men injured in the war, but an Act passed in 1918 provides that any surplus which, in the opinion of the Joint War Committee, cannot usefully be applied in this way, may be devoted to the general relief of sickness and suffering. Grants have already been made in this country, amounting approximately to £1,350,000, to hospitals, convalescent homes, nursing associations, and other kindred bodies capable of rendering help in the restoration to health of men injured in the war. The condition of the grants has been that wherever possible priority shall be given to the claims of ex-combatants and their dependants. Grants amounting approximately to £500,000 have been made, under similar conditions, to the Dominions, Colonies, and Protectorates. The Joint War Committee will delegate to the Joint Peace Council of the British Red Cross and the Order of St. John the duty of winding up the work of the War Committee, and it is anticipated that the new council will develop other activities proper to peace.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediocra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES AND ANSWERS.

CELSUS seeks the statistics (in children's hospitals) of polypus recti and fistula in ano as factors causing haemorrhage from the bowels in patients under 6 years of age.

INCOME TAX.

L. V. S. is in the Government Medical Service in Uganda. He was unable to obtain his six months' furlough when it became due, with the result that he is now on furlough for six months *plus* four months in respect of arrears, that is, ten months in all. He has been informed by the Inland Revenue authorities that as his stay in this country will exceed six months in the financial year 1919-20 he will for that year be liable to tax on his leave pay from the date of his arrival here.

*** The statement is correct in point of law. A person coming to his country for a temporary purpose only does not become liable to tax as a British resident unless his stay here amounts to a period of six months in any one financial year. If the six months period is reached liability to British income tax attaches, not from the expiration of that period but as from the date of coming to the British Isles—in other words the exemption in favour of temporary residents fails *in toto*. This certainly appears to involve our correspondent in some hardship, seeing that it was due to governmental action that his furlough was delayed and gave rise to a temporary residence here of more than six months. We are not aware of any concession which would cover such a case, and the legal position seems clear. We gather that no assessment for 1919-20 has yet been made. If such cases are dealt with by means of supplementary assessments made late in the financial year—and such a course would seem to be more or less inevitable seeing that the question of liability or exemption could not be answered at the earliest until October 5th, 1919, six months from the commencement of the financial year—we are inclined to suppose that an appreciable proportion of the legal liability is inoperative, because the person assessed would probably be outside the British tax jurisdiction by the time the tax becomes exigible.

F. A. A. asks for information as to the method of obtaining repayment of income tax deducted from army gratuities.

*** The Commissioners of Inland Revenue made an announcement last August with regard to the arrangements for repayment of income tax in respect of war gratuities under the Finance Act, 1919, which provides for the exemption of war gratuities as from August 4th, 1914. As the present addresses of the recipients of these gratuities are not available, application for repayment is necessary; it should be addressed to the Secretary, Inland Revenue (Claims Branch), Australia House, London, W.C.2, the envelope being marked "Gratuity."

LETTERS, NOTES, ETC.

WAR NEUROSES.

WE are asked by the Medical Services Division of the Ministry of Pensions to publish the following:

The advance which has been made as a result of experience gained during the war in the method of treatment for cases of neurasthenia, shell shock, and functional nervous disorders in general, is probably greater than in the case of any other form of medical disability. Moreover, medical men who have been brought directly into contact with cases of this nature, and whose duty it has been during the war to undertake the care of this class of patient, appreciate more fully than is possible to those members of the profession without similar opportunities, the dangers which attend delay in the provision of the special forms of treatment which experience has shown can alone ensure satisfactory results.

The Ministry of Pensions has established neurological hospitals for in-patients and psycho-therapy clinics for out-patients, and in both types of institution the most modern methods of treatment are applied.

The Medical Service Department of the Ministry of Pensions would be obliged if general practitioners, who have among their patients cases of war neuroses, would communicate with them at 14, Great Smith Street, Westminster, S.W.1, with regard to any case, even if the condition is not severe, which is not progressing rapidly towards recovery. In a severe case, in the interests of the patient, this should always be done. Where necessary, the Ministry will certainly arrange for treatment at one of its special institutions.

SMITH'S VISITING LIST.

WE have received from the publishers, Messrs. Hazell, Watson, and Viney, Ltd., of 52, Long Acre, W.C.2, a specimen copy of one of *Smith's Medical Visiting Lists* for 1920. This well known annual publication has now reached its seventy-fourth year of issue, and its convenience has been tested by generations of medical practitioners. The visiting lists are made in two styles of binding and in five kinds of ruling and spacing. The prices range between 6s. and 12s. 6d.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 38, 39, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 36 and 37.

THE following vacant appointments of certifying factory surgeons are announced: Canterbury (Kent), Colnbrook (Buckingham), Dewsbury (York, West Riding), Shanklin (Isle of Wight), Burnham Market (Norfolk), Gamlingay (Cambridge).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.